A Statement of Work for
County of Santa Barbara

Telecommunications Technical Plan

5 May 2011
Engagement: 330002448
Solicitation Number: Request for Information

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5 May 2011

Mark Masoner
Senior Buyer
County of Santa Barbara
105 E. Anapamu, Suite 304
Santa Barbara, CA 93101-2070

Engagement: 330002448
Re: Statement of Work for Telecommunications Technical Plan
Solicitation Number: Request for Information

Dear Mr. Masoner:

Gartner, Inc. (Gartner) is pleased to provide the County of Santa Barbara) with this Statement of Work in response to Request for Information: Telecommunications Technical Plan. Gartner understands the importance of this effort in order for County of Santa Barbara to develop a technical strategy (plan) and roadmap to transition to Voice over IP (VoIP).

Our approach to developing the technical strategy is based on analyzing all elements of Unified Communications and Collaborations (UCC), of which the technologies listed in the RFI; Voice Services, Wired Physical Infrastructure, Local Area Networks, Wide Area Networks and Wireless Services are key components. Our approach will broaden the analysis to include all of the aspects of a UCC strategy by including; Conferencing, Presence, Directory infrastructure, Collaborations infrastructure and applications, and other technologies as described in our proposal. This approach is based on our research findings that have shown the convergence and interdependence of communications and collaborations technologies mandate a comprehensive approach to strategic planning - anything less risks partial or incomplete solutions.

We have organized our response according to the submittal requirements of Request for Information:

- Cover Letter
- Confidentiality Statement
- Executive Summary
- Company References
- Project Team
- Understanding and Description of the Tasks to be Performed
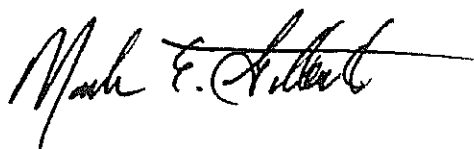- Methods and Tools

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- ■ Assumptions
- ■ Timeline
- ■ Cost (not included per instructions)
- ■ Work Sample (as an attachment)

Our offer is valid for 60 days from the submission date of this Statement of Work.

Please contact me at +1 818 497 8528 or via e-mail at mark.e.gilbert@gartner.com if you have any questions regarding this Statement of Work. Thank you for this opportunity. We look forward to assisting County of Santa Barbara with this key initiative.

Sincerely,

Mark Gilbert
Director, Gartner Consulting

cc: Nicolas Cocquerelle, Sr. Account Executive

Attachment

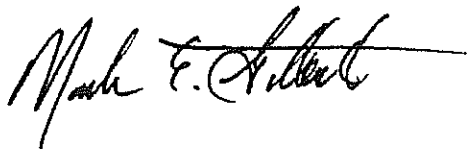# Table of Contents

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Confidentiality Statement

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1.0 Confidentiality Statement

As an authorized representative and/or corporate officer of the company named below, who has authority to bind the company, I warrant my company and its employees will not disclose any documents, diagrams, information and information storage media made available to us by the County for the purpose of responding to RFI# 063-400 or in conjunction with any contract arising there from. I warrant that only those employees who are authorized and required to use such materials will have access to them.

I further warrant that all materials provided by the County will be returned promptly after use and that all copies or derivations of the materials will be physically and/or electronically destroyed. I will include with the returned materials, a letter attesting to the complete return of materials, and documenting the destruction of copies and derivations. Failure to so comply will subject this company to liability, both criminal and civil, including all damages to the County and third parties. I authorize the County to inspect and verify the above.

I warrant that if my company is awarded the contract, it will not enter into any agreements or discussions with a third party concerning such materials prior to receiving written confirmation from the County that such third party has an agreement with the County similar in nature to this one.

Mark E. Gilbert (signature)

5 May 2011

_____   _____
(Signature of representative)   (Date)

Mark E Gilbert

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Executive Summary

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2.0 Executive Summary

Gartner is pleased to submit this Statement of Work to County of Santa Barbara (County of Santa Barbara) for developing a Telecommunications Technical Plan. We understand the risks and uncertainty the County faces as they consider the replacement of your NEC telecommunications infrastructure. Both technology and the providers of services/equipment are rapidly evolving into an unpredictable future making it extremely difficult to develop a strategic plan that roadmaps the evolution of the County's critical communications infrastructure.

Fortunately, Gartner has the insight, tools, experience and consultants that can collaboratively work with the County to develop a path forward – not just for the replacement of the voice infrastructure, but for the evolution of all Unified Communications and Collaborations technologies.

Using the RFI scope as a foundation, Gartner is proposing to conduct a comprehensive Unified Communications and Collaborations strategic plan development. This includes an assessment of the data network infrastructure and wireless services to determine their ability to act as a replacement and/or supplement to the voice communications infrastructure. This approach results in the development of recommendations that enable convergence between voice, data and computing platforms to provide unified communications over all infrastructures.

Properly developed, the UCC strategy will result in a lower cost of communications by enabling the substitution of traditional voice communications infrastructure (PBX's) with VoIP on the data network, wireless network, cellular network or computing network. The UCC strategy will also maximize value by increasing the capabilities of each of the networks to provide all types of communications.

Our proposed scope of work emphasizes a systemic assessment that will provide a comprehensive strategy that includes specific recommendations for each of the UCC technology domains.

We are very fortunate to be able to propose two of our most senior experts in UCC and County government communications; Mark Gilbert and Steve Buckley as the Engagement Manager and Quality Assurance resources and as Subject Matter Experts. Mr. Gilbert is responsible for our Global UCC and Mobility Practices; Mr. Buckley has been the Quality Assurance Expert on all of our large County UCC engagements. Both Mark and Steve live in Ventura County and are committed to making themselves available for this engagement. Both gentlemen are internationally known experts in all communications technologies used within the County (including 7/800MHz radio, microwave, optical, broadband, data and voice). Both also have extensive experience in Southern California having worked with the Counties of Ventura, Los Angeles, San Diego and Riverside. They both look forward to developing a relationship with the County of Santa Barbara.

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Company References

3.0 Company References

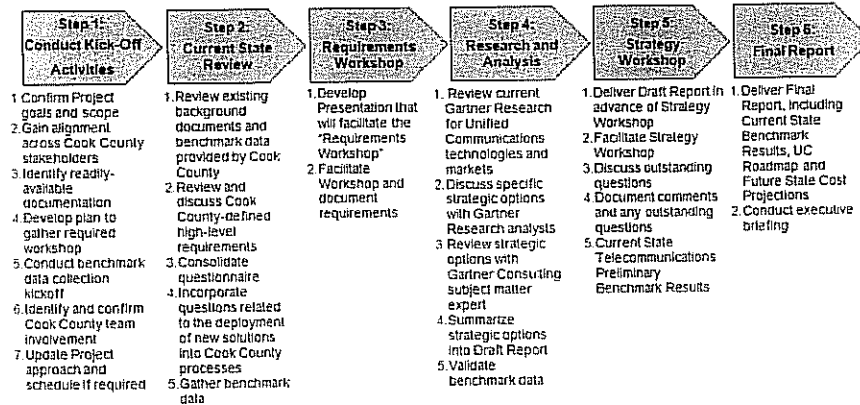|	COUNTY OF SAN DIEGO UCC STRATEGY
Client Name:	County of San Diego
Project Name:	Unified Communications and Collaborations Strategy
Customer Contact: including e-mail address and phone number	**Harold Tuck** County of San Diego Chief Information Officer (619) 531-4540 Work (619) 405-6047 Mobile Harold.Tuck@sdcounty.ca.gov 1600 Pacific Highway San Diego, CA 92101
Contract Amount:	$125k
Contract Duration including start and end dates:	May 2010 – Dec 2010
Relevance to this Project:	Same scope of work for a larger County client
Project Scope and Tasks	▪ Create an architectural standard for the deployment of UCC within the County of San Diego — Define UCC and its benefits to the County — Create the County's vision of UC, define the goals and challenges to achieving the goals — Assess the capability of the current infrastructure for deployment of UC — Identify who should provide the UC components in the County — Present the different solution alternatives available for the County and perform SWOT analysis ▪ Identify the top investment opportunities for UC at the County of San Diego — Identify the top alternatives and the associated cost/benefit for these alternatives ▪ Create business case and the roadmap ▪ Project Steps;

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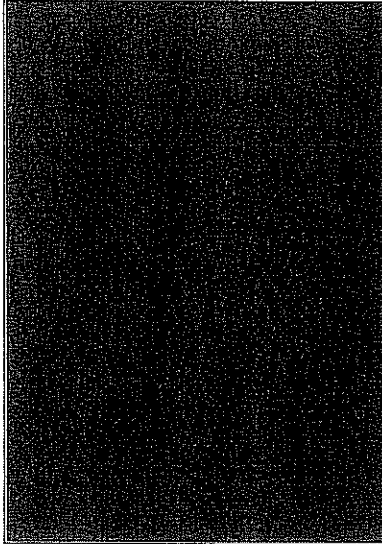
	COOK COUNTY UCC STRATEGY
Client Name:	Cook County (Illinois)
Project Name:	Unified Communications and Collaborations Strategy
Customer Contact: including e-mail address and phone number	**Rod Height** Cook County Bureau of Technology Chief Technology Officer Information Solutions and Services (312) 603-4629 Work roderick.height@cookcountyil.gov 118 N. Clark, 7th Floor Chicago, Il
Contract Amount:	$225k (included cost benchmarking component)
Contract Duration including start and end dates:	Dec 2010 – May 2011
Relevance to this Project:	Larger scope of work for a larger County client

Project Scope and Tasks	▪ Project Objectives
	   – Evaluate the cost effectiveness of the current telecommunications capabilities, focusing on the WAN for voice and data, video and audio teleconferencing
	   – Support Cook County in developing a Unified Communications Strategy for technology and services, including
	   – Define Requirements
	   – Review Technology Deployment and Service Support Options

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- Recommend Unified Communications Technology and Services Solutions
- Review vendor capabilities and sourcing options
- Recommend Road Map for the deployment of Unified Communications
- Develop a projected cost range for the future UC infrastructure

▣ Project Steps;

Step 1: Conduct Kick-Off Activities	Step 2: Current State Review	Step 3: Requirements Workshop	Step 4: Research and Analysis	Step 5: Strategy Workshop	Step 6: Final Report
1. Confirm Project goals and scope 2. Gain alignment across Cook County stakeholders 3. Identify readily-available documentation 4. Develop plan to gather required workshop 5. Conduct benchmark data collection kickoff 6. Identify and confirm Cook County team involvement 7. Update Project approach and schedule if required	1. Review existing background documents and benchmark data provided by Cook County 2. Review and discuss Cook County-defined high-level requirements 3. Consolidate questionnaire 4. Incorporate questions related to the deployment of new solutions into Cook County processes 5. Gather benchmark data	1. Develop Presentation that will facilitate the "Requirements Workshop" 2. Facilitate Workshop and document requirements	1. Review current Gartner Research for Unified Communications technologies and markets 2. Discuss specific strategic options with Gartner Research analysts 3. Review strategic options with Gartner Consulting subject matter expert 4. Summarize strategic options into Draft Report 5. Validate benchmark data	1. Deliver Draft Report in advance of Strategy Workshop 2. Facilitate Strategy Workshop 3. Discuss outstanding questions 4. Document comments and any outstanding questions 5. Current State Telecommunications Preliminary Benchmark Results	1. Deliver Final Report, including Current State Benchmark Results, UC Roadmap and Future State Cost Projections 2. Conduct executive briefing

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	STATE OF KANSAS UCC STRATEGY
Client Name:	State of Kansas (Topeka)
Project Name:	Unified Communications and Collaborations Strategy and Business Case
Customer Contact: including e-mail address and phone number	**Morey Sullivan** State of Kansas Deputy Director +1 (785) 296-4285 Work +1 (785) 230-0549 Mobile Morey.Sullivan@da.ks.gov 900 SW Jackson St, Room 751S Topeka, Kansas 66612-1220 USA
Contract Amount:	$241k (included cost benchmarking and detailed business case development)
Contract Duration including start and end dates:	Nov 2008 – March 2009
Relevance to this Project:	Larger scope of work for a State client
Project Scope and Tasks	▣ Project Steps; Phase I. Requirements Definition and Strategy Recommendation Step 1. Project Planning and Initiation

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Step 2. Review Current DISC/State Telecom Environment

Step 3. Assess Current Environment

Step 4. Investigate Communications Requirements

Step 5. Establish a Vision of the Future State Communications

Step 6. Conduct Provider Market Scan

Step 7. Develop Strategic Recommendation

Phase II. Business Case Development

Step 1. Confirm Objectives and High-Level Requirements

Step 2. Develop Telecommunications Cost Baseline

Step 3. Develop Draft Business Case Document

Step 4. Finalize Business Case Document

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The Gartner Advantage

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4.0 The Gartner Advantage

We have the strategy development templates, tools, methodologies, best practices and experience to quickly and effectively establish a telecommunications strategy that transforms the County. We have experience working with similar State and Local government clients to leverage the best practices that Gartner has extensively documented, the IT strategic planning methodologies that Gartner has extensively developed and published, our in depth knowledge of technology both from a research and applied experience. We have extensive data bases that allow us to assess the current environment, define a future state vision of the Unified Communications and Collaboration network, and develop a roadmap to deployment.

We have performed extensive UCC engagements for other County governments (see reference list). We have also performed an extensive breadth of engagements for our County clients including; mobility, public safety radio, applications, sourcing for all departments within a County government. From a State Government perspective we have assisted clients the states of Virginia, Georgia, California, Alaska, Michigan, North Carolina, Tennessee, Ohio, Florida and others. We have assisted large counties such as San Diego, King (Seattle), San Francisco and others in the purchase of equipment and services. Some of these procurements have exceeded several billions of dollars and have successfully operated for 10 years!

We have been successful leveraging and applying our knowledge and experience to achieve the business goals and objectives of our clients – we can do so for the County of Santa Barbara.

4.1 Gartner's History of Providing Similar Services

Gartner, Inc. is the leading provider of research and analysis on the global information technology industry. Gartner is a publicly traded corporation incorporated in the State of Delaware in 1979, and is headquartered in Stamford, Connecticut. Our U.S. West Region has several offices to serve the County of Santa Barbara, including our West Regional office in Los Angeles.

Gartner supports both public and private sector enterprises as they drive innovation and respond to customer needs through the use of technology. We help clients make informed technology and business decisions by providing in-depth analysis and actionable advice on virtually all aspects of technology. For over 25 years, Gartner has been assisting Federal, state and local governments, as well as private sector organizations, make informed decisions regarding their information technology investments.

We take pride in our pioneering work to assist our clients in benefiting from the use of technology. Gartner clients trust in our rigorous standards that safeguard the independence and objectivity of our research and advice. With over US$1.4 billion in revenue in 2010, and more than 10,000 clients and 75 locations worldwide, we are the clear market leader.

One of our key areas of focus is providing organizations with advice pertinent to their use of information and communications solutions. We have successfully completed thousands of engagements with our clients over a 25-year span.

The County of Santa Barbara would benefit from the breadth and depth of Gartner resources. Specifically:

- Pertinent Experience: Gartner has successfully assisted hundreds of organizations including several of the largest states improve their organizations, processes and

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systems, and are fully experienced in all elements of IT and telecommunications. Our firm has successfully completed or has underway similar projects for many clients.

- Proven Methodology: Gartner's proposed methodology to complete this project is based on years of project experience and has been streamlined and honed to help expedite the completion of projects, avoid costly mistakes and help ensure ultimate success.

- Outstanding Personnel: Our project teams consist of specialists with significant experience and expertise in IT and telecommunications strategic planning. The staff proposed for this engagement is well qualified to provide the competence and expertise that the County requires, as evidenced by their experience in performing similar engagements.

- Management Consulting: Gartner provides more than technical consulting assistance. We ensure that business objectives are clearly established as the foundation for IT and telecommunication strategies.

- Global Resources: Gartner is a global company, leveraging resources around the world.

- Responsive Client Service: We are particularly proud of the long-term relationships that we have developed with our clients, and most clients have repeatedly selected us for additional assignments. We believe this is a result of the high level of service, quality and timeliness we provide to our clients, which we commit to providing the County. In addition, we work as a team with our clients, leveraging not only our experience but also the experience of County personnel.

- Objectivity and Independence: Our firm brings a completely objective and independent viewpoint to all aspects of our projects. Gartner's independence is critically important. At a time when alliances between major consultants and technology suppliers have clouded the landscape, Gartner remains resolutely objective. We have no incentive to recommend specific technologies; we do not do any implementations. Our only allegiance is to helping you achieve the results you want with solutions that make sense.

- Credibility: Our objectivity and expertise combined with our fact-based approach to client engagements means that Gartner recommendations carry significant weight with County executive, political and legislative leaders. Gartner advice drives decisions within our client organizations and our credibility will help support and drive the County's telecommunication decisions.

- Value-Added Resources: Gartner consultants use our unique intellectual capital and robust tools and databases. As a leading authority on information and communications technology, Gartner provides cutting edge advice and targeted insights to support competitive decision making across many elements of the technology spectrum.

The following table summarizes Gartner key differentiators.

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Table 1.   Gartner Key Differentiators

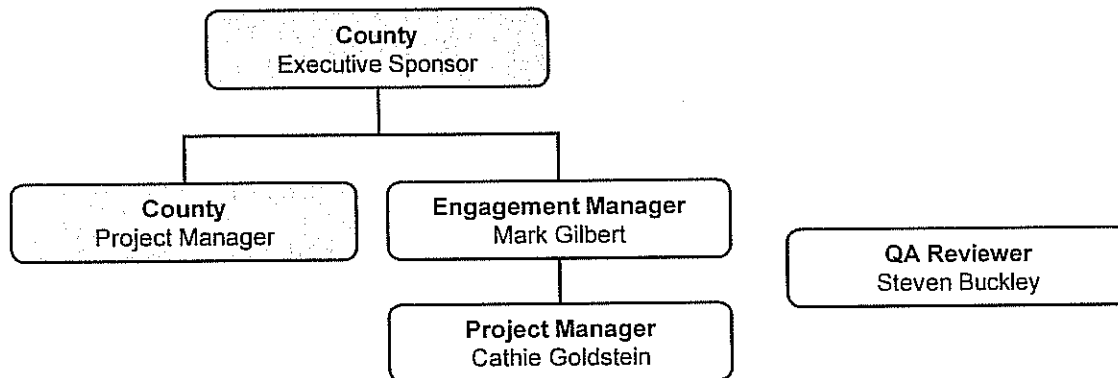| Key Consulting Criteria	Does Your Consultant:	Gartner Position	Gartner Difference
Independence	Sell hardware?	No	Gartner is not a systems integrator and we have no partner relationships. Our sole focus is the client's business needs.
	Sell software business solutions?	No	
	Perform systems integration?	No	
Objectivity	Have a track record and business model that ensures objective recommendations?	Yes	Gartner *has* to be objective. Our research assessments and prognostications influence the entire industry.
Industry Perspective	Possess industry-wide research?	Yes	As the world's leading technology research and advisory firm, Gartner can bring both quantitative and qualitative context to your IT decisions—which provides you with both confidence and speed.
	Possess industry-wide benchmarks?	Yes	
	Possess direct experience on similar initiatives around the world?	Yes	
Depth of Resources	Have the ability to draw on expertise and resources across a broad range of technologies?	Yes	Gartner is a global company with both research and consulting resources worldwide.
Credibility	Have a reputation and brand that help sell your decisions?	Yes	An often asked question is, "What does Gartner say?"

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The Gartner Project Team

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5.0 The Gartner Project Team

5.1.1 Project Team Organization

Gartner has created an organization structure for this engagement that ensures high-level sponsorship and quality assurance, strong day-to-day project management, a focused team of project consultants, and deep subject matter expertise. The key roles and proposed individuals for the Gartner team are shown in Figure 1.

Figure 1.   UCC Strategy Development Team

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                    ┌─────────────────────┐
                    │      County         │
                    │  Executive Sponsor  │
                    └─────────────────────┘
                             │
            ┌────────────────┴────────────────┐
   ┌─────────────────┐            ┌─────────────────────┐
   │     County      │            │ Engagement Manager  │      ┌──────────────────┐
   │ Project Manager │            │    Mark Gilbert     │      │   QA Reviewer    │
   └─────────────────┘            └─────────────────────┘      │  Steven Buckley  │
                                             │                 └──────────────────┘
                                  ┌─────────────────────┐
                                  │   Project Manager   │
                                  │  Cathie Goldstein   │
                                  └─────────────────────┘
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We are very fortunate that Ventura County is the home of two our leading UCC Consultants; Mark Gilbert and Steve Buckley. Because of the County's close proximity, we are proposing to complete the engagement using our two most expert consultants. Mark is the Global Practice lead for our Unified Communications and Collaborations, and our Mobility Practices. Steve is the Global lead for our Sourcing Practice. Both have a combined 50+ years of communications technology and State and Local government experience. As an example of the depth of their experience, Mark was certified at a technician and engineer level on the NEAX 2400 (although it was 15 years ago!).

The Consulting team will be supported by Jay Lassman and other researchers as required. This approach allows for the transition of knowledge and recommendations from the Consulting team to the Research team so the researchers can support the County following the engagement.

5.1.2 Roles and Responsibilities

Following is a description of the roles and responsibilities for this engagement.

Table 2.   Project Team Roles and Responsibilities

Gartner Associate	Role	Responsibilities
Mark Gilbert	Engagement Manager	▪ Ensure that Gartner activities support County goals ▪ Build and maintain a long-standing relationship with CHI

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Gartner Associate	Role	Responsibilities
		■ Provide high-level oversight to the project and become more heavily involved should any issue resolution be necessary
Catherine Goldstein	Project Manager	■ Be responsible for the day-to-day management of project initiatives ■ Ensure that project deliverables are completed on time and meet the Gartner quality standards ■ Act as the primary point of contact for the Gartner team ■ Work closely with the County to ensure that Gartner is meeting its needs
Jay Lassman	Research Analyst	■ Support the core project team by providing a context sensitive perspective to issues specific to the County based on Gartner industry-leading research ■ Participate in analysis and comparisons, and review deliverables as needed
Steve Buckley	Quality Assurance Specialist	■ Provide quality assurance review of Gartner project plan and Gartner deliverables throughout the engagement ■ Ensure value through use of the Gartner Project Management Life Cycle detailed in this document

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Understanding and Description of Tasks to be Performed

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6.0 Understanding and Description of the Tasks to be Performed

6.1 Our Understanding and Business Context

The County is considering the upgrade or replacement of its existing NEC telephone systems and would like assistance in determining the optimal alternative. The goal is to achieve a migration to VoIP that will enable the County to provide convergent communications services that leverage existing investments in voice and data networking infrastructure to provide the highest value services at the lowest total cost of ownership.

6.2 Project Scope and Objectives

6.2.1 Project Scope

The County's RFI defines the scope of technology as;

Voice Services

- Provide an assessment of current voice technologies.
- Identify the voice requirements and sizing requirements for voice services, call centers, and unified messaging.
- Identify the desired approach of using a converged telecommunications/data network. Or a standalone telecommunications VoIP network.
- Conduct an assessment of the technology management needs and requirements.
- Identify cost associated with the multiple technology options.

Wired Physical Infrastructure

- Assess the outside cable and inside cable plant for voice, data, and video services.
- Identify upgrades to the physical infrastructure including the telecommunication rooms that are needed to support the voice, data, and video requirements of the County.
- Identify cost associated with the physical infrastructure options.

Local Area Networks (LANs)

- Provide an assessment of the current local area networks.
- Identify the sizing requirements for the data network core, distribution, and edge.
- Conduct an assessment of the technology management needs and requirements.
- Identify cost associated with the LAN for the County's roadmap.

Wide Area Network (WAN)

- Assess the current WAN capacity and identify the upgrade requirements to support voice, data, and video services for the Plan.
- Identify costs associated with the WAN options.

Wireless Services

- Provide an assessment of the current wireless systems.
- Identify the role of wireless as a replacement as well as a supplemental technology.
- The wireless equipment and sizing requirements.
- Conduct an assessment of the technology management needs and requirements.
- Identify cost associated with the multiple technology options.

We recommend an expansion of the scope to align with the Gartner UCC technology groups as defined by our extensive research. These are the technology groups that are part of a best practices UCC strategy because of their high interdependence with each other in a convergent UCC implementation. The Gartner UCC technology groups are as follows;

Telephony and Voice Communication:
Communication technologies related to live one-to-one communications. Historically, these are grounded in telephone technologies. However, live video and peer-to-peer voice communications are increasingly important elements of this group.

Group	Technology
Telephony and Voice Communications	Voice Telephony
	Video Telephony
	Real-Time Voice w/UCC
Conferencing	Audio Conferencing
	Web Conferencing
	Video Conferencing and Telepresence
	Integrated or Unified Conferencing
	Video Content Streaming Mgmt and Distribution
Messaging	E-Mail
	Voice Mail
	Unified Messaging
	Short Message Service (SMS) and Multimedia Messaging Service (MMS)
	Mobile E-Mail

- **Voice Telephony:** Enterprise voice is typically delivered through a PBX or an IP-PBX. However, the voice area is evolving rapidly, with a wide range of software-based solutions entering the market. Some approaches eliminate the central "switch" and use directories to enable any-to-any enterprise and inter-enterprise contact set-up across multiple channels (such as Microsoft's Office Communications Server [OCS] and Cisco's Intercompany Media Engine).
- **Video Telephony:** Video telephony in enterprise applications is closely related to two-way videoconferencing, but is considered distinct in several ways. The primary distinction between these two is that video telephony is associated with specialized equipment, such as an integrated telephone, video camera and display screen.
- **Real Time Voice w/UC:** This approach uses centralized mechanisms such as presence services built from Session Initiation Protocol (SIP) proxies and registrars. These solutions are often able to coexist in parallel with existing telephony investments, sometimes acting as complementary alternative communication mechanisms. Additionally, these solutions offer voice along with other real-time UC functions. .

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Conferencing: This grouping focuses on live communications supporting multiparty interactions. As conference recording increases, the management of recorded content will become more important, which will accelerate further as video becomes more prevalent.

Group	Technology
Telephony and Voice Communications	Voice Telephony
	Video Telephony
	Real-Time Voice w/UCC
Conferencing	Audio Conferencing
	Web Conferencing
	Video Conferencing and Telepresence
	Integrated or Unified Conferencing
	Video Content Streaming, Mgmt and Distribution
Messaging	E-Mail
	Voice Mail
	Unified Messaging
	Short Message Service (SMS) and Multimedia Messaging Service (MMS)
	Mobile E-Mail

- **Audio Conferencing:** Stand-alone audio conferencing remains the most mature and frequently used form of conferencing. Reservationless and unassisted audio conferencing services are now offered at very low prices, which has slowed the shift to on-premises solutions.
- **Web Conferencing:** Web conferencing usage continues to increase. It is often initially sold to address the needs of a specific group. However, as usage increases, responsibility may shift to the IT department, and it is then offered broadly throughout the enterprise. It is used in both on-premises and on-demand service delivery modes.
- **Video Conferencing and Telepresence:** Stand-alone desktop appliances, unlike point-to-point video phones, can also be used to deliver multipart conferencing to executive users. At the other end of the spectrum is video telepresence, where a small number of high-cost, high-quality rooms offer a fully immersive experience.
- **Integrated or Unified Conferencing:** The integration of audio conferencing, Web conferencing and videoconferencing into a single converged or unified conferencing solution is now at an early stage of maturity.
- **Video Content Streaming, Management and Distribution:** Videoconferencing integrated with downloadable video content and with streaming video capabilities. For instance, enterprises will wish to stream video conferences live to broad audiences, while conversely, conference participants will wish to display stored video content to videoconference participants.

Messaging: This group encompasses technologies associated with store-and-forward applications, such as e-mail or voice mail. Increasingly, various forms of wireless and media messaging must also be considered as part of a messaging review.

Group	Technology
Telephony and Voice Communications	Voice Telephony
	Video Telephony
	Real-Time Voice w/UCC
Conferencing	Audio Conferencing
	Web Conferencing
	Video Conferencing and Telepresence
	Integrated or Unified Conferencing
	Video Content Streaming, Mgmt and Distribution
Messaging	E-Mail
	Voice Mail
	Unified Messaging
	Short Message Service (SMS) and Multimedia Messaging Service (MMS)
	Mobile E-Mail

- **E-Mail:** It will remain the dominant form of messaging, and other messaging forms will increasingly use a common e-mail-oriented store. E-mail will remain tightly coupled with enterprise directory services and calendaring functions. Compliance and storage management remain a critical issue for enterprises. This market will continue to evolve as enterprise, mobile and consumer messaging products become more tightly integrated and as low-price hosted offerings (such as Google, Cisco and Microsoft) become prevalent.
- **Voice Mail:** Voice mail is in gradual transition toward various forms of UM. E-mail and IM/presence have displaced the phone as the preferred interaction method for many individuals. As a result, some, but not all, individuals find a UM solution useful
- **Unified Messaging:** Three common approaches to UM are: 1.) Single e-mail store — In this case, all messages (e-mail, voice mail, fax and others) are stored in the e-mail server. 2.) Client-side integration of separate voice mail and e-mail systems — In this case, voice and e-mail messages are stored entirely separately. A properly configured client or browser application is able to access both stores. 3.) Voice mail hyperlink in e-mail — In this case, the voice messages stay in the voice mail store, but a hyperlink is sent to the e-mail store. The e-mail receiver can then click on the hyperlink and retrieve the message via e-mail.
- **SMS and MMS:** SMS is used for sending short text messaging by mobile handsets. - Multimedia Messaging Service (MMS) extends text messaging to include longer text, graphics, photos, as well as audio and video clips.
- **Mobile E-Mail:** The market for enterprise wireless e-mail products is mature, and has largely consolidated around the products of Microsoft and Research In Motion (RIM).

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Presence and IM: Presence and IM have characteristics of live and messaging interaction modes, so they are usually grouped as their own technology area. These are increasingly seen as key enablers for coordination and collaboration applications and activities.

Group	Technology
Presence and IM	Presence and Rich Presence
	Instant Messaging (IM)
	Mobile IM and Presence
Client and End-Points	Desktop Communication Clients
	Softphones, SIP Phones and Telephone
	Wireless Phones, Smartphones and Mobile Devices
Directory	Directory

Presence and Rich Presence: Rich presence services provide information about the current state of an individual, equipment or application. Rich presence can include information indicating whether someone is on the phone, available via mobile phone or available via video. However, the use of rich presence can extend beyond the status of individuals — it can monitor information on the state of shared resources, such as equipment or online virtual meetings (conferences). Rich presence can be integrated with location-based services, which allow users to identify the location and the state of resources and individuals.

IM: The best-known use of presence is with IM, where it is possible to see if others are logged in before engaging them with text dialogue. IM has established itself as a key enterprise business tool, creating a more informal method of interaction between those that frequently interact.

Mobile IM/Presence: Mobile IM/presence capabilities are increasingly added to smartphones and enhanced phones, preinstalling clients for connecting devices to proprietary or public IM services. For example, RIM's BlackBerry devices are equipped with BlackBerry Messenger, Windows Mobile devices ship with preloaded clients to connect to Windows Live Mobile. IM clients are also available to connect smartphones to private collaboration platforms, such as Microsoft's OCS.

Client and End Points: User interfaces and devices, such as desktop and smartphone clients.

Group	Technology
Presence and IM	Presence and Rich Presence
	Instant Messaging (IM)
	Mobile IM and Presence
Client and End-Points	Desktop Communication Clients
	Softphones, SIP Phones and Telephone
	Wireless Phones, Smartphones and Mobile Devices
Directory	Directory

Desktop Communicator Clients: Desktop communicator clients and dashboards provide a single desktop interface to many or all communication functions. This simplifies use, increases adoption and improves productivity. Functions to support or consider include communication, collaboration and business applications, integrated presence, standards (such as voice over IP, SIP, Lightweight Directory Access Protocol [LDAP] and others) compliance, security, mobility and extensibility.

Soft Phones, SIP Phones and Telephones : Softphones and SIP phones are entering the market in many forms. With more support for SIP connectivity in IP-PBXs, many companies are taking a more open approach to selecting user handsets.

Wireless Phones, Smartphones and Mobile Devices: Enterprises also need to consider whether they want mobility through carrier wireless networks, through an enterprise in-building Wi-Fi or both (via dual-band)...

Directory: Directories are at the center of many communication applications and functions. To be successful, communication applications need to be integrated with enterprise directory solutions. Additionally, enterprise, public telephony and Internet directory services need to be integrated. As a result, midsize and large enterprises must operate a collection of directories on multiple platforms which, as an aggregate, form the enterprise directory.

Infrastructure components that should be included in the assessment include;

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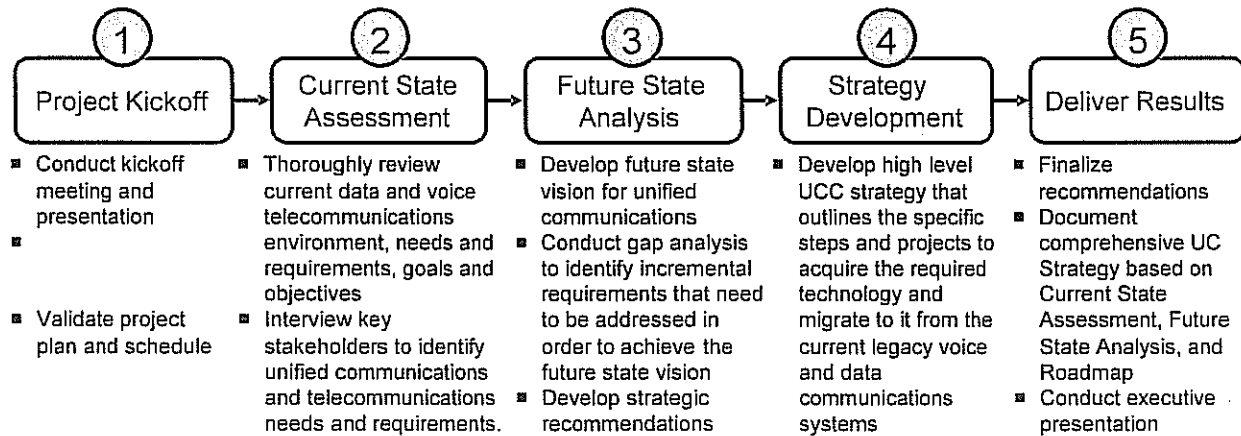
Infrastructure Components
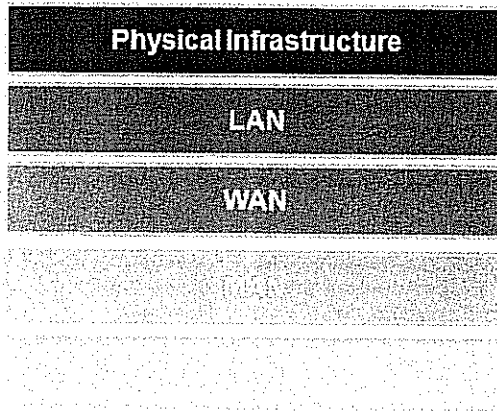
- **Physical Infrastructure:** The physical components such as cabling, inline power provisioning, uninterruptible power supplies (UPS), and associated environmental such as cooling, secured closet etc.
- **LAN:** LAN that provides data and voice inter-connectivity to the local users. LAN connects users through high speed Ethernet and Wireless access. These remote sites are then connected through the backbone to other sites and the Data Center.
- **WAN:** The communications network that connects voice and data devices over geographically dispersed locations. WANs can use a number of methods to provide network connectivity such as phone lines, dedicated communication lines, fiber-optics, and Ethernet-based services.
- **MAN:** the Metropolitan Area Networks that interconnect multiple buildings over a non-contiguous campus
- **CAN:** The Campus Area Networks that interconnect multiple buildings over a contiguous campus

Our approach to the engagement will include a review and assessment of all UCC related technologies and infrastructures that will enable Gartner to provide a comprehensive recommendation for the replacement of voice communications services currently provisioned from the NEC network.

6.3 Gartner Approach

The following work steps details services to be provide by Gartner to develop a UCC strategy and implementation roadmap for the County

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Figure 2. Gartner Approach

① Project Kickoff	② Current State Assessment	③ Future State Analysis	④ Strategy Development	⑤ Deliver Results
▪ Conduct kickoff meeting and presentation ▪ ▪ Validate project plan and schedule	▪ Thoroughly review current data and voice telecommunications environment, needs and requirements, goals and objectives ▪ Interview key stakeholders to identify unified communications and telecommunications needs and requirements.	▪ Develop future state vision for unified communications ▪ Conduct gap analysis to identify incremental requirements that need to be addressed in order to achieve the future state vision ▪ Develop strategic recommendations	▪ Develop high level UCC strategy that outlines the specific steps and projects to acquire the required technology and migrate to it from the current legacy voice and data communications systems	▪ Finalize recommendations ▪ Document comprehensive UC Strategy based on Current State Assessment, Future State Analysis, and Roadmap ▪ Conduct executive presentation

6.3.1 Detailed Approach

Task 1. Project Initiation

Objective:

▪ Work closely with County of Santa Barbara to set the foundation for a successful engagement that is delivered on time, within budget and meets County of Santa Barbara's objectives.

Activities performed by Gartner:

▪ Gartner will hold a kickoff meeting with County of Santa Barbara to ensure understanding of scope, schedule, milestones, roles, responsibilities and required resources for Gartner and County of Santa Barbara. Gartner will also discuss anticipated risks and mitigation plans, based on lessons learned from past experience. Gartner will gather any relevant background material from County of Santa Barbara.

County of Santa Barbara responsibilities:

▪ Ensure attendance at kickoff meeting by Project Sponsor, Project Manager and other key stakeholders, as determined prior to kickoff.

Deliverable(s):

▪ Kickoff meeting materials;

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- Draft project schedule;
- Draft project plan;
- Data collection sheets; and
- Interview guides to assist in the interviewees preparation for the interviews

Time frame:
- 1 week(s)

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Task 2. Review Current State Environment

Objective:

- Thoroughly review County of Santa Barbara's current data and voice telecommunication environments, needs, requirements, goals and long term objectives.

Activities performed by Gartner:

- Gartner will review background material relevant to the project. At a minimum, this will include an understanding of the existing telecommunications network, data network infrastructure, business and strategic plans, past UCC implementations and other relevant material.
- Areas of discovery:
  - Currently deployed platforms;
  - Voice and telecommunications: including, but not limited to fixed voice, mobile voice and softphones;
  - Conferencing: including but not limited to audio, video, and Web conferencing. May also include meeting room technologies, multipoint Webcam approaches, and unified or integrated conferencing solutions;
  - Messaging architecture (email and voice mail and unified messaging);
  - Instant Messaging (IM)/presence: Includes IM, presence and rich presence aggregation;
  - Desktop Software Clients: Includes thick clients, thin Web clients and mobile clients;
  - Applications: including applications that have integrated communication functions. Four key application areas are consolidated administration tools, collaboration applications, notification applications and contact center applications;
  - Data network architecture (LAN and WAN); and
  - Private/shared Metropolitan Area Network (MAN) Transport architecture.
- Gartner will conduct interviews with key communications stakeholders as designed by County of Santa Barbara which may include, but not be limited to:
  - Executive stakeholders (e.g. project sponsors);
  - Telecommunications support/engineering stakeholders;
  - IT and data network stakeholders (messaging integration, network integration); and
- Document the requirements as perceived by the telecommunications stakeholders.
- Gartner will interview key stakeholders, as designated by County of Santa Barbara, to identify unified communications and telecommunications needs and

Group	Technology
Telephony and Voice Communications	Voice Telephony
	Video Telephony
	Real-Time Voice w/UCC
Conferencing	Audio Conferencing
	Web Conferencing
	Video Conferencing and Telepresence
	Integrated or Unified Conferencing
	Video Content Streaming, Mgmt and Distribution
Messaging	E-Mail
	Voice Mail
	Unified Messaging
	Short Message Service (SMS) and Multimedia Messaging Service (MMS)
	Mobile E-Mail

Group	Technology
Presence and IM	Presence and Rich Presence
	Instant Messaging (IM)
	Mobile IM and Presence
Client and End-Points	Desktop Communication Clients
	Softphones, SIP Phones and Telephone
	Wireless Phones, Smartphones and Mobile Devices
Directory	Directory

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requirements. Gartner will conduct 5-7 up to one hour focus groups with different types or classes of users to determine their unique requirements.

■ Gartner shall document the overall business and technical requirements with the purpose of socializing the findings, making modifications and gaining a broad concurrence as appropriate. Once finalized the high-level business requirements will be used as a primary driver in the selection of a communications strategy, the definition of a reference architecture and development of a high level implementation roadmap.

County of Santa Barbara responsibilities:

■ Respond in a timely manner to document and data collection requests;

■ Provide relevant background documentation on current environment;

■ Participate in interviews; and

■ Attend workshops and provide feedback.

Deliverable(s):

■ Review of current environment documentation;

■ Two days of interviews with stakeholders to review and validate our understanding of the current environment and in an effort to prepare the high level requirements document.

■ One hour review of assessment findings with the County project leader and others as designated by County of Santa Barbara.

■ High-level requirements document
   ❑ Business and technical requirements; and
   ❑ Solution alternatives projected.

Time frame:

■ 2 week(s)

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Objective:

- Identify the capabilities of the existing infrastructure to support UCC technologies.

Activities performed by Gartner:

- Review and assess the existing infrastructure:
  - Physical infrastructure;
  - Metropolitan Area Network (MAN);
  - Remote LANs;
  - Wide-Area Network (WAN)
  - Private Branch Exchange (PBX)
  - Key System Units (KSUs)
  - Communication Applications, examples include voice mail, e-mail, interactive voice response (IVR) and automatic call distribution (ACD), etc.

County of Santa Barbara responsibilities:

- Document the current and desired functional requirements for the communications infrastructure.

Deliverable(s):

- Summary of current state assessment identifying the capability of the existing infrastructure to support UCC technologies.

Time frame:

- 2 week(s)

Infrastructure UCC Readiness

Components	UCC Readiness
Physical Infrastructure	
Remote LAN	
GigaMAN	
OPTI-E-MAN	
IP PBX	
Centrex	

Not UCC Ready

UCC Ready

Communications Applications UCC Readiness

Components	UCC Readiness
Physical Infrastructure	
Remote LAN	
GigaMAN	
OPTI-E-MAN	
IP PBX	
Centrex	

Not UCC Ready

UCC Ready

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Task 4. Future State Analysis

Objective:

- Gartner shall develop a future state vision based on County of Santa Barbara business needs and requirements—not on the limitations and/or capabilities of present day technologies or vendor alternatives.
- Gartner shall conduct gap analysis to identify the incremental requirements that need to be addressed in order for County of Santa Barbara to achieve its vision.
- Gartner shall identify the appropriate UCC infrastructure components for the County of Santa Barbara future state architecture.

Activities performed by Gartner:

- Conduct a one to two (1-2) day workshop with key project team members to review and analyze alternative technology options capable of aching the future state vision.
- Identify the key technology trends and to determine what potential those trends have in achieving the strategic goals and objectives of County of Santa Barbara. We will utilize Gartner's considerable research and experience in similar engagements as well as information solicited directly from vendors in order to identify and plan for key marketplace considerations.
- Identify key issues in the implementation of a next generation telecommunications network and establish a common understanding of the technologies and technology capabilities available to County of Santa Barbara. The research will also inform the technology alternatives analysis described below.
- To finalize the requirements of the telecommunications network and to discuss different design and implementation alternatives based on Gartner's view of the market. *The goal, once the technology domains and key issues are defined, is to drive the group to a consensus on the standards and technologies that should be selected for the long term UC strategy.*
- Conduct a structured alternatives analysis of the viable converged network solutions, and develop an evaluation framework with criteria and weightings (priorities) that will form the basis for the selection of the alternatives that best meet County of Santa Barbara needs. These criteria will include both qualitative and quantitative elements such as requirements, costs, scalability and flexibility. For each alternative, we will identify differences in terms of:
  - ☐ Characteristics: technologies, business/operational implications, time to implement, major milestones,

Unified Communications Magic Quadrant
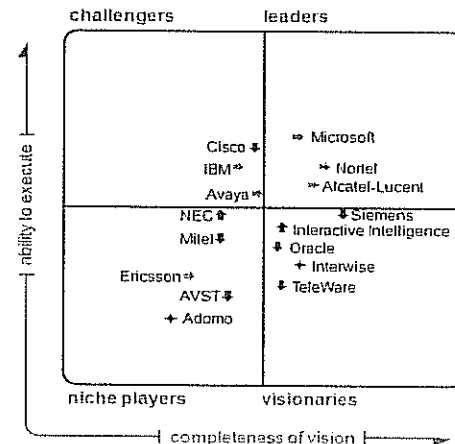
Vendor	MQ Trend	
Adomo	ь	Low cost, Linux appliance
Alcatel-Lucent	◄	Carrier and enterprise product portfolio
Avaya	◄	Widely deployed products
AVST	↓	Lacks full spectrum of UC functions
Cisco	↓	Network centricity may impede CEBP
Ericsson	◄	Premise & carrier integration for mobility
IBM	◄	Back-end business application emphasis
Interactive Intelligence	↑	Tightly bundled all-in-one solution
Interwise	ь	Conferencing-centric (audio, video, Web)
Microsoft	◄	UC portfolio breadth
Mitel	↓	Mitel lacks enterprise market penetration
NEC	↑	Single management interfaces
Nortel	►	Nortel/Microsoft alliance
Oracle	↓	Fragmented UC solution
Siemens	↓	Limited market awareness
TeleWare	↓	Private Mobile Exchange (customization)

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internal/external resources

- ❏ High-level costs associated with each alternative (a more detailed cost model will be defined for the selected alternative)
- ❏ Advantages and disadvantages of each alternative
- In addition to the technology alternatives (i.e., standard protocols, equipment, topologies, etc.), we will address operational/migration alternatives (i.e., network operations and management, administration, etc.), governance and impact on network service providers and service contracts.

County of Santa Barbara responsibilities:
- Attend and participate in Future State workshop

Deliverable(s):
- Vision of the future state of communications
- Gap assessment between the current and future state of communications needs and requirements
- Best practices research and trend information
- Technology, Operational and Migration Alternative descriptions analysis and strategic recommendations

Time frame:
- 3 week(s)

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Task 5. UCC Strategy Development

Objective:

- During this step Gartner, with input from County of Santa Barbara team, will develop architecture and product recommendations for UCC components. The table on the following page identifies the extent of architecture or product recommendations that will be made for each of the UCC technologies.
- Based on the architecture and product recommendations, Gartner will prepare a summary UCC Strategy and Roadmap for achieving the future state communications vision.
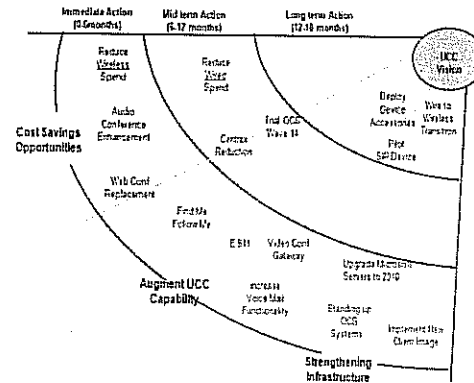
Activities performed by Gartner:

- Review Gartner vendor analysis of vendor strengths, market position and weaknesses.
- Identify architecture strategies and product recommendations.
- Develop a strategy recommendation.

County of Santa Barbara responsibilities:

- Respond to additional requests for information.

Deliverable(s):

- Provide strategic recommendation regarding enterprise approach and product selection for Unified Communications.

Time frame:

- 2 week(s)

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Group	Technology	UCC Architecture Recommendations
Telephony and Voice Communications	Voice Telephony	Product recommendation
	Video Telephony	Review Current Strategy
	Real-Time Voice w/UCC	Product recommendation
Conferencing	Audio Conferencing	Strategy recommendation
	Web Conferencing	Review current strategy
	Video Conferencing and Telepresence	Review current strategy
	Integrated or Unified Conferencing	Strategy recommendation
	Video content streaming, management and distribution	Review current strategy
Messaging	E-Mail	Review Current Strategy
	Voice Mail	Strategy recommendation
	Unified Messaging	Strategy recommendation
	SMS and MMS	Review current strategy
	Mobile E-Mail	Review current strategy
Presence and IM	Presence and Rich Presence	Strategy recommendation
	Instant Messaging (IM)	Strategy recommendation
	Mobile IM and Presence	Review current Strategy
Client and End-Points		Review current Strategy
		Strategy recommendation
		Architecture Strategy
Directory	Directory	Review current Strategy

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Task 6.   Deliver Results

Objective:

- Finalize all analysis into final report and executive presentation.
- Conduct an executive briefing of formal UC strategy.

Activities performed by Gartner:

- Finalize integrated and cohesive final report.
- Create an executive level "presentation style" overview of the UC strategy and roadmap.
- Conduct a 2 hour on-site presentation of this material to County of Santa Barbara project sponsors and County of Santa Barbara selected senior executives.

County of Santa Barbara responsibilities:

- Attend final executive presentation.

Deliverable(s):

- Formal UC strategy deliverable; and
- Final executive presentation.

Time frame:

- 1 week(s)

		A	B	C	D	E
Voice	Fixed					
	Mobile					
	Softphone					
Confer-encing	Audio					
	Web					
	Video					
IM/ Presence	IM					
	Rich Presence					
	Prstnt. Chat					
Messaging	E-Mail					
	Unif. Msg.					
	Voice Mail					
Clients	Thick					
	Thin Web					
	Mobile					
Apps.	Collaboration					
	Contact Ctr.					
	CEBP					

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6.4 Assumptions

The deliverables, schedule and pricing in this SOW are based on the following assumptions:

- Any requests for additional information (beyond the details described in the tasks above) that are made by County of Santa Barbara will be considered a change in scope for this engagement and will be handled accordingly.

- All deliverables will be developed using Microsoft products (for example, Project, Excel, Word and PowerPoint).

- The due diligence (as-is) data are reasonably available via documentation review.

- County of Santa Barbara will provide timely access to all appropriate personnel to be interviewed. These personnel will have the ability to provide data necessary to complete this project, answer questions, provide existing documentation and attend working sessions.

- Project pricing assumes that Gartner will conduct 15 interviews/workshops over a period of 10 days and that County of Santa Barbara will arrange all sessions with County of Santa Barbara personnel.

- All data collection and interviews/workshops will take place via telephone or in person at County of Santa Barbara offices in Santa Barbara, California as agreed to at the project kickoff.

- Resumes of key personnel provided in this SOW No. 1 assume a project start date of 15 June 2011. If the actual project start date is different, proposed individuals may not be available. In this event, we will work with County of Santa Barbara to identify alternative personnel with appropriate skills and background.

- County of Santa Barbara will designate a project manager to act as the primary point of contact for this project. The County of Santa Barbara project manager will be expected to work closely with the Gartner employees as needed and will: (a) approve project priorities, detailed task plans and schedules; (b) facilitate the scheduling of Gartner interviews with appropriate client personnel; (c) notify Gartner in writing of any project or performance issues; and (d) assist in resolving project issues that may arise.

- The work effort described in this SOW assumes that County of Santa Barbara personnel are available to assist in the project as defined. In the event that County of Santa Barbara personnel are not available, a change of scope may be necessary.

- County of Santa Barbara will review and approve documents within five (5) business days, unless otherwise mutually agreed to by the parties. If no formal approval or rejection is received within that time, the deliverable is considered to be accepted by County of Santa Barbara.

- County of Santa Barbara is to schedule County of Santa Barbara resources for project activities and provide meeting facilities as necessary.

- County of Santa Barbara personnel will be made available per the final project schedule.

- With the exception of meetings and workshops, Gartner work will be performed at Gartner locations.

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- Office space, telephones and access to the open Internet will be made available to Gartner staff at County of Santa Barbara locations for on-site project time.
- Gartner will have access to printing/copying services at County of Santa Barbara locations.

6.5 Investment Summary

6.5.1 Investment Overview

In accordance with instructions, pricing will be provided as part of the final Proposal.

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Attachments

7.0 Attachments

Project Team Biographies

Following are the project team members who will likely work on this proposed engagement. In the event that the individuals proposed herein are not available, Gartner will substitute another qualified professional with similar expertise and credentials.

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Mark E. Gilbert, Engagement Manager
Director, Gartner Consulting

Mark E. Gilbert has an extensive background in sourcing services in both the public and private sectors over the past 25 years. His key strengths are in aligning technology with business goals, building high-performance technology systems and sourcing. Mr. Gilbert joined Gartner in 2000 and is based in Woodland Hills, California.

Mr. Gilbert is involved in some of the leading sourcing projects for both government agencies and private sector clients within North America. His recent experience includes the following:

- County of San Diego – Facilitated the development of a strategic plan for a regional public safety wireless communications network consisting of the County, all cities within the County and the Imperial County.

- University of Pittsburgh Medical Center – Provided at the table support for contract negotiations; developed Statement of Works and implementation plans; performed technical due diligence in support of a $274M sourcing contract with Alcatel

- St Joseph Health System - assist in the strategic planning and alternatives analysis for a not-for-profit Catholic health care system with Corporate Offices located in Orange, California. The System operates 14 hospitals, three home health agencies and multiple physician groups within Northern California, West Texas and Southern California.

- State of Florida Senate – assist in the strategic planning, procurement, evaluation and selection, and IV&V for a 60 site VoIP network interconnecting the Capital with District Offices.

- City of San Jose – RFP development, evaluation and selection of a convergent VoIP, at the table contract negotiations support for a video and data network at the New City Hall.

- Government of Alberta SuperNet project—assisted the Government of Alberta (GOA) by providing evaluations of proposals and best and final offers from potential SuperNet providers. Provided GOA with technical, strategic and business advice during SuperNet contract negotiations. Participated in GOA's Network Design Committee.

- University of Southern California—assisted in establishing the communication strategic plan for the University. Included the deployment of VoIP telecommunications, next-generation data networking deployment and the development of RFPs for both services.

- Fairfax County Public Schools—Assessed sourcing alternatives, assisted in the strategic planning for the deployment of an I-Net interconnecting all of the School Division's schools. Included the distribution of voice, data and video content on a single convergent network.

- Corporation for Educational Networking Initiatives in California (CENIC)—authored the GigaBit or Bust report, identifying the economic opportunity within the State of California for the ubiquitous deployment of broadband.

- State of Ohio—assisted the State of Ohio ITSD is determining the potential for cost savings and improved service levels through integration of the Ohio Department of Job and Family Services (ODJFS) WAN and the ITSD-operated Ohio.gov network. Secondly, Gartner assisted the State of Ohio ITSD in undertaking strategic planning to establish the future direction of the replacement of the State telecommunications network with the new Ohio.gov network.

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- Union Bank of California – assist in the strategic planning and procurement of a VoIP WAN for 451 sites.

- State of Ohio—assisted OARnet (State-wide higher education network) in the evaluation of network designs and the selection of networking equipment used in the Third Frontier Network Initiative.

- Development of the outsourcing RFP, evaluation methodology, service-level agreements, incentive plan, contract terms and conditions, and transition plan for the State of Georgia's US$3 billion convergent communications outsourcing procurement.

- Support in the development of the outsourcing RFP, development of evaluation methodology and vendor selection for the State of Michigan LinkMichigan US$3 billion convergent communications outsourcing procurement.

- Development of the sourcing RFP, SLAs and contract terms and conditions for the State of Alabama communications services procurement.

- Provided Internet Corporation for Assigned Numbering and Naming (ICANN) with an evaluation of proposals and vendor recommendation for the reassignment of the.org Top-Level Domain Registry operator.

- Operations and sourcing business case evaluation of the King County, Washington, I-Net municipal network. The network utilizes ATM technology to interconnect County offices.

- Operations and sourcing alternatives assessment for the City of Austin Greater Austin Area Telecommunications Network (GAATN) municipal network. The network utilizes SONET technology to interconnect City offices.

- Evaluation of telecommunications and MAN outsourcing proposal—assisted the County of Sarasota, Florida, with the evaluation of proposals for the outsourcing of a new packet switching telecommunications and optical metropolitan-area network. The project includes the replacement of all PBX and LAN switches, and the implementation of VoIP networking on a switched Dense Wave Division Multiplexing optical MAN.

- Preparation of a telecommunications strategic plan—assisted the City of Phoenix, Arizona, in the preparation of a telecommunications strategic plan that encompassed both circuit and packet voice telecommunications and its optical metropolitan-area network. This project examined the voice and MAN requirements for more than 13,000 City employees, resulting in a recommendation for a hybrid circuit and packet-based solution networked over a ring DWDM and meshed gigabit Ethernet MAN.

- County of Hawaii

  - Wide-area and local-area network design—assisted the Hawaii County Police Department by designing a wide-area and multiple local-area networks within the HCPD stations within the Big Island.

  - County of Hawaii – Independent Verification and Validation of the installation of a 28-site, Public Safety microwave network covering the Island of Hawaii.

- Metropolitan-area network architect—assisted the City of Eugene, Oregon, in the preparation of a MAN network architecture utilizing optical and leased services.

- Evaluation of a telecommunications networking proposal—assisted the County of Fort Bend, Texas, in the evaluation of a County-wide telecommunications replacement proposal.

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- IT and telecommunications outsourcing project technical advisor—responsible for providing technical advice in the architecting and implementation on the US$643 million outsourcing contract for the County of San Diego. The project encompasses all of the County's telecommunications and IT operations including the PBX network, ATM-based WAN, local and long-distance services, wireless, LAN, desktop hardware and software, servers, data centers, help desk, network operations center, new ERP applications and maintenance of legacy applications.

Mr. Gilbert received an executive MBA degree from the University of Southern California.
He received a Bachelor of Science degree in finance from the University of Southern California.

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Steven L. Buckley, Quality Assurance Specialist
Vice President, Gartner Consulting Practice

Mr. Buckley is a Vice President and global leader of Gartner Consulting's Sourcing Practice. He has extensive experience with the full range of IT and telecommunications services ranging from strategic planning to systems design, engineering, procurement and contract negotiations, and finally to the full implementation, training and acceptance testing phases of projects. Mr. Buckley has been responsible for the planning and development of some of the nation's leading edge private and public sector technology and projects. He joined Gartner in 1988 and is based in Woodland Hills, California.

Mr. Buckley is a nationally recognized expert in outsourcing, strategic planning and the analysis of evolving technologies.

His recent experience includes the following:

- Data Center Sourcing Strategy – assisted a major pharma company with the analysis of alternative strategies for the next generation data center operations. The analysis included various build and buy alternatives in which each was evaluated from a financial, risk and service level perspective.

- Outsourcing Relationship Performance Assessment – responsible for the delivery of a relationship performance assessment evaluating the quantitative and qualitative value of the relationship between a major international apparel manufacturer and their IT services provider.

- Global IT Procurement Assessment – assisted a major European telecommunications solution company develop a RFP for outsourced IT services. The primary objective of the project was to review and audit the soon to be released RFQ for the procurement of global IT services to ensure best practices were being deployed.

- Sourcing strategy and procurement – assisted the County of Solano with developing a multi-sourcing strategy for the delivery of IT services including infrastructure and applications. The strategy incorporates a benchmark of current solutions to the market for financial and performance management. Included as part of the engagement is the development of an RFP for outsourced services, and negotiations of a sole-source contract.

- Outsourcing Contract Assessment and Renegotiations – Assisted a major international construction and engineering firm with assessing the relationship with their current outsourced IT systems provider. Included the evaluation of services being delivered and validation of administrative management including billing and invoicing accuracy. As a separate project, developed a telecommunications strategy for migration to VoIP solutions.

- Program Management and Sourcing Oversight – Assisting the City of New York with the quality assurance and program oversight for the 911 enhancement project. The project includes the implementation of co-located E-911 operations for Police, Fire and Emergency Medical services. Project components have included the strategy, selection and contract negotiations of a $180M outsourced network infrastructure.

- IT outsourcing strategy and procurement—responsible for the management of and acted as lead consultant on the landmark $644M outsourcing contract for the County of San Diego. The project encompasses all of the county's telecommunications and IT

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operations including the PBX network, ATM-based WAN, local and long-distance services, wireless, LAN, desktop hardware and software, servers, data centers, help desk, network operations center, new ERP applications and maintenance of legacy applications. Mr. Buckley led Gartner's efforts through the initial strategic planning, the development of the RFP, selection of the best-value provider, contract negotiations, and program management during the transition.

- Telecommunications procurement – assisting the County of Los Angeles with the strategy development and procurement of telecommunications services. Project components include local services, long distance and managed services for the transition to VoIP.

- Wireless network procurement – assisting the Danish government with the evaluation of proposals and negotiations strategy for a new country-wide public safety voice and data wireless network. The new network will provide interoperable law, fire and medical field communications. The solution includes an innovative service based provider operational and support structure over a 10 year period and is valued at approximately $400M.

- Supply chain sourcing strategy—led the Gartner team efforts to analyze the company supply chain management needs for a major pipeline service company. The strategy included an analysis of the local and international market capabilities of various supply chain full-service providers in comparison to the development and enhancement of internal operations.

- Call Center Assessment – Assisted a major US Health Plan provider with the assessment of member call center operations. Included was an evaluation of the regional call centers including business drivers, sourcing alternatives, technology maturity and needs, operational efficiencies and benchmarking of key indicators against industry best practices.

- Service level agreement development—reviewed current contract terms and conditions including service levels for the State of California. Prepared recommended set of minimum acceptable service levels (MASLs) for the State to use in renegotiating their agreement with their statewide telecommunications provider.

- Human resources and payroll business process outsourcing (BPO) strategy – assisted a major California based utility company with the evaluation of a vendor proposal and ROI analysis to outsource human resources and payroll systems and processes. Included in the analysis was the evaluation of industry maturity and best practices.

- IT Outsourcing Contract Health Assessment—conducted a contract assessment for the City of Riverside on a $60 million IT Outsourcing contract. The scope of the review included IT Management, IT Operations, System Administration, Application Support, Programming Support and Software Acquisition and Development Support.

- IT assessment and strategy – Assisted a major private university with the assessment of their IT infrastructure and organization. The assessment included all aspects of the university's IT systems. The final strategy identified priority needs, alternatives, technology and organizational solutions, financial impacts, recommendations and a schedule for improvements.

- Comprehensive telecommunications procurement—responsible for the State of Alaska project to develop a procurement strategy, build a Request for Proposals (RFP), assist in vendor selection and negotiate the $100m contract for the state's comprehensive telecommunications partnering project. This strategic partnering project included the

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participation of every state agency and covered all aspects of telecommunications technology, including basic and enhanced telephony services, data network services, audio and video conferencing, paging and cellular services, and satellite telephony and broadcast services.

- Outsourcing strategy and service level review—participated in the strategy and contract review for the development of an outsourcing contract for an international research and conservation institution. Services included desktop and customer service.

- IT Convergence Contract Development and Negotiations—participated on the quality review board for a multi-tower $2.5 billion IT and Telecommunications Convergence Outsourcing Contract for the State of Georgia.

- IT outsourcing procurement—responsible for the development of a strategy, RFP build and procurement for a large oil pipeline company IT services. Led the Gartner team efforts to prepare and execute an agreement for desktop, mid range processing, server processing, Local and Long Distance, local area network and help desk services. The project included a detailed assessment of the current operations to identify a strategy to achieve the best value results from the outsource providers.

- Wireless Outsourcing Project—Assisted the State of New York with the evaluation of proposals for outsourcing the statewide public safety radio system. The innovative solution resulted in a $1B+ contract for outsourcing the implementation, integration and management of the statewide system.

- Outsourcing re-negotiation strategy and contract—assisted the City of Indianapolis and Marion County develop a strategy to renegotiate their outsourcing services agreement. Included the review of the contract, establishment of new approaches for service levels, penalties, technology migration and desktop refresh. Participated in the negotiations of the new contract. Later assisted the City and County with the development of a RFP and selection of a new sourcing provider.

His previous experience includes the following:

- Telecommunications management and teleprocessing—Mr. Buckley has held positions in telecommunications management and in teleprocessing. He was a Manager of the Teleprocessing Support Group at Hughes Aircraft Company's Radar Systems Group, where he gained extensive direct hands-on experience managing large campus wide voice and data communications systems.

Mr. Buckley graduated from California State University, Long Beach, with a Bachelor of Science degree in business administration specializing in computers and information systems.
Mr. Buckley is a frequent speaker on sourcing of IT services and emergency communications systems integration.

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Catherine Hess Goldstein
Associate Director, Gartner Consulting

Ms. Goldstein has over nine years of experience in technology and management consulting, specializing in wireless and radio communications projects. She has led and contributed to teams of consultants providing strategy, policy, and technology analysis, and project/program management services. Her functional knowledge covers various technical and operational areas including land mobile radio, communications interoperability solutions, public safety operations, commercial wireless, and RFID. Ms. Goldstein joined Gartner in 2007 and is based out of the New York City office.

Her recent and previous engagements include the following:

Project Management

- For a New York local government organization—Supporting efforts to implement advanced notification technologies (e.g., email, text message, and phone calls) to deliver important information directly to constituents. Specifically, this support includes quality assurance oversight to current pilot implementations and developing a strategic roadmap for long-term implementation.

- For a local government agency—Providing project management and advisory assistance to an effort that is enhancing first responder communications within the high rises and other buildings planned for the rebuilt World Trade Center.

- For a local government technology organization—providing support to a communications improvement project within the New York City subway system, including the development a cohesive plan, methodology, and approach for the redesign, implementation, testing and acceptance of a joint agency wireless communications system.

- For a Long Island, NY, public safety agency—provided communications system implementation quality assurance support. This included attending factory acceptance tests, evaluating vendor change order proposals, and tracking system design changes from the vendor's original contract.

- For a joint program between DHS and DOJ—Provided oversight of a clearinghouse that provided information on such subjects as wireless technologies, systems planning, funding strategies, and wireless standards to local and state public safety agencies. Additionally, Ms. Goldstein authored program charters for a new DHS program that ultimately replaced the joint DHS/DOJ program.

Business Process Analysis

- In support of a U.S. Army program office tasked with modernizing non-tactical radio systems across Continental United States (CONUS) Army installations—conducted a wireless system implementation alternatives analysis, which included alternative identification, cost analysis, risk/benefit analysis, and overall program fiscal year impact analysis. This analysis included evaluating alternatives such as different system technologies, commercial services, cost sharing policy changes, and consolidated systems. Ms. Goldstein also analyzed impacts of system upgrade timelines and risks of not meeting governing mandates.

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Sourcing

- For the same U.S. Army program office tasked with modernizing non-tactical radio systems across CONUS Army installations—led an assessment of user requirements for industry standards (i.e., Project 25) features. This assessment solicited users for feedback on needed radio system features and provided recommendations to client project managers on which features to include in future system procurements.

- For a Department of Homeland Security (DHS) grant-giving office—supported efforts to define high-level public safety wireless communications requirements and assess the maturity of communications interoperability in 75 metropolitan areas. Under this support, she developed evaluation criteria for assessing interoperability efforts in metropolitan areas. This guidance was used by subject matter expert (SME) panels to assess each area and provide recommendations on how to best improve public safety communications with existing technologies

- For a DHS-related program tasked with providing the emergency responder community with information on the capabilities of commercial products, Ms. Goldstein led the development of a Request for Information (RFI) to solicit vendor product information, a market survey report of commercial off-the-shelf (COTS) products, and a technology guide of portable communications repeaters for use at incident scenes.

IT Strategy

- In support of a U.S. Army research and development lab—supported a task to equip a laboratory environment for radio frequency identification (RFID) product evaluation and demonstration. In addition to guiding junior staff for this support, Ms Goldstein provided strategic recommendations to the client for developing relationships within the Department of Defense (DoD) RFID community and building support to that community

- For the State of Texas—developed a strategic plan for the improvement of public safety communications interoperability across the state. She also conducted interviews, collected data and contributed to a case study report on the state of public safety communications along the I-35 corridor between Austin and Laredo, Texas.

Organization Design & Solution Architecture

- For a transportation authority in New York—Led support efforts as the organization planned to change communications system frequencies in order to mitigate interference from Sprint Nextel commercial wireless services in the 800 MHz radio frequency band. In addition to general project management coordination, she performed technical and operational support. She conducted site visits to equipment locations to ascertain whether current equipment could be changed to the new frequencies. She analyzed multiple system databases in order to estimate numbers and types of user equipment and impacts the rebanding would have on that equipment. She led the collection of operational requirements from user groups and developed labor, equipment, and cost estimates as well as estimated project timelines for the effort it would take to reband the systems. Ms. Goldstein also supported funding negotiation meetings between the client organization and Sprint Nextel.

- Additionally, she supported a Department of Justice (DOJ) initiative to improve communications interoperability among first responders in 25 high-risk metropolitan areas. Ms. Goldstein spearheaded stakeholder relationship building, data collection,

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interoperability gap analysis, solution selection, high-level design, and solution operational assistance in three of the high-risk metropolitan areas.

Prior to joining Gartner, Ms. Goldstein worked as an associate at Booz Allen Hamilton supporting information technology projects for defense, federal, state, and local government clients.

Ms. Goldstein earned a Bachelor of Science degree in Electrical Engineering with a minor in Technology Management and Policy from the University of Virginia. She holds a Project Management Professional (PMP) certification from the Project Management Institute and a certificate in Business Strategy from the Round Table Group.

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Work Sample

We have attached a VoIP Research report prepared for the Province of Alberta that was prepared by the Mark Gilbert. Although this document is in the public domain, and therefore the client name was not redacted, we respectfully ask the County to limit distribution of the document in accordance with County procurement rules.

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Any questions regarding this Statement of Work should be addressed to:

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This Statement of Work was prepared for County of Santa Barbara:

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Government of Alberta

VoIP Research

10 October 2008
Engagement: 22226830

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Overview

Unified Communications (UC) products provide the potential to substantially reduce the costs of communications while dramatically increasing the effectiveness of communications. Unfortunately, UC products also provide an opportunity to overspend on inadequate or wrong solutions that could detrimentally impact the ability to communicate. Like any substantial change in technology—achieving your goals can only be achieved through a clear understanding of the change, knowledge of your needs and requirements, detailed planning and execution.

In this white paper we will define what UC is, what the business drivers are, the trends for government and private sector companies, and the opportunities that UC presents the Government of Alberta.
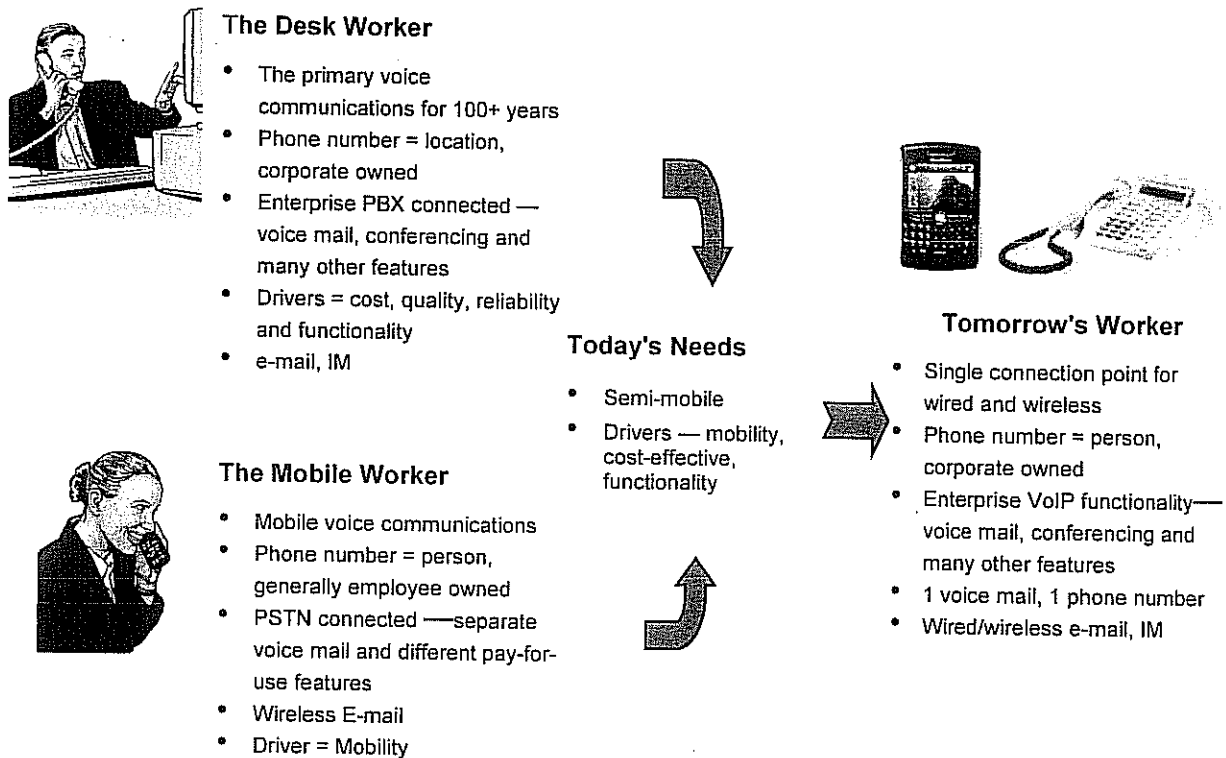
Unified Communications

The Vision

Unified Communications products are a portfolio of solutions that work together to deliver a unified communications experience. Essentially changing the way we work and communicate.

Figure 1 illustrates how today's desk worker or mobile worker will evolve into a worker who is not bounded by workgroups, time, location and mobility as we enable increased productivity through increased flexibility.

Figure 1.   The Evolution to the Worker of Tomorrow

The Desk Worker

- The primary voice communications for 100+ years
- Phone number = location, corporate owned
- Enterprise PBX connected — voice mail, conferencing and many other features
- Drivers = cost, quality, reliability and functionality
- e-mail, IM

Today's Needs

- Semi-mobile
- Drivers — mobility, cost-effective, functionality

The Mobile Worker

- Mobile voice communications
- Phone number = person, generally employee owned
- PSTN connected —separate voice mail and different pay-for-use features
- Wireless E-mail
- Driver = Mobility

Tomorrow's Worker

- Single connection point for wired and wireless
- Phone number = person, corporate owned
- Enterprise VoIP functionality— voice mail, conferencing and many other features
- 1 voice mail, 1 phone number
- Wired/wireless e-mail, IM

The worker of tomorrow will need communications that supports access to the breadth of communications tools (Voice Mail, E-Mail, Fax, Instant Messaging, Directories and

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collaboration) via any wired or wireless access point. The goal of Unified Communications is to provide all communications mediums at anytime and any location.

In the UC vision of the future VoIP telephony will replace the PBX; unified messaging will bring voice mail and e-mail together; separate voice, video and Web conferencing capabilities will converge; instant messaging (IM's) capabilities will expand to voice, conferencing, video and e-mail. Desktop communications will bring the new presence, voice, data, video, messaging and conferencing components together through a desktop and wireless interface. Individuals will have ubiquitous access to the rich suite of communications tools regardless of their access location or medium (desktop phone, wireless phone, cell phone or Personal Computer)

Who Is Deploying UC?

In the fourth quarter of 2007, Gartner surveyed 300 organizations about their plans for IP telephony and UC. Fifty-seven companies that had already deployed UC were asked about the improvements that resulted in the business. Improvements were shown to be greatest in employee and workgroup productivity, as well as customer service and communications for mobile workers. The survey findings are presented in the following illustration.

Figure 2. Top Benefits of UC Deployment
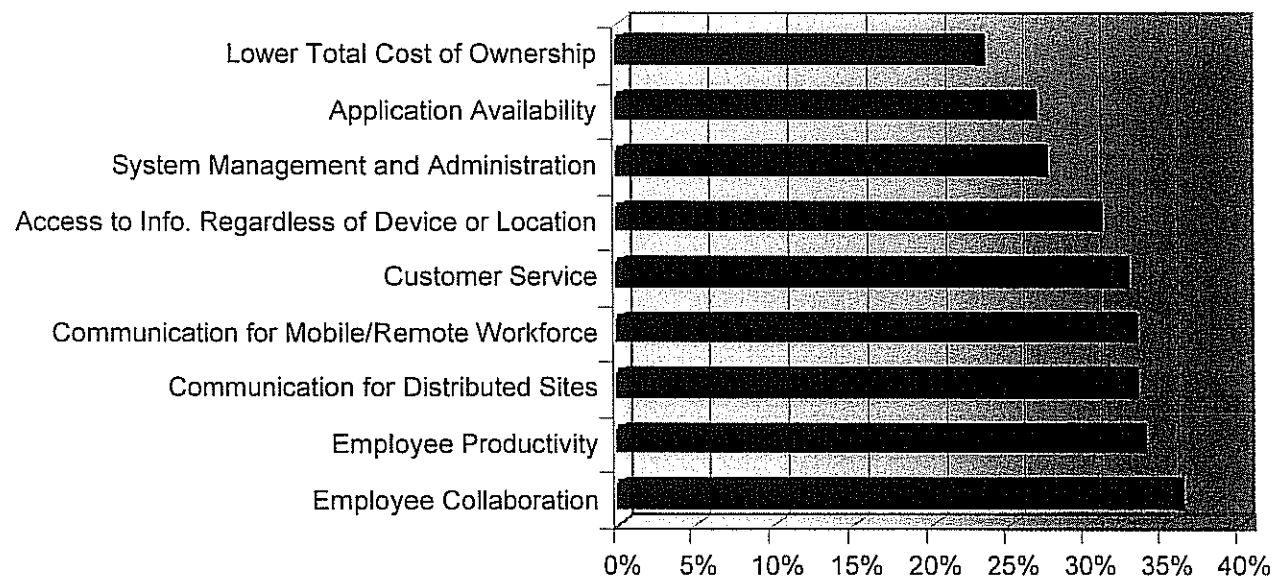
Our research also discovered the top three "killer applications" for UC, each of which offers a significant opportunity for enterprises to make task and process improvements.

Context-Specific Presence Lists allows applications to dynamically create lists of individuals based on the specific current needs of the person using the application and the current environment. This list includes presence information about the individuals and the communications channels available to the end user.

Flexible Media and Conference Switching allows a single interaction sequence to change channels (or media) and add or reduce the number of participants, without ending and restarting the session. In this way, an interaction starts one way, escalates to another and then invites others. A typical implementation would allow a user to migrate a chat conversation to audio then to Web, and perhaps back to audio.

Intelligent Notification Services provides applications with flexible ways of contacting people with important information. Business rules will define how each notification will be dealt with. This

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can include the order in which people need to be contacted, what to do should a person be unavailable, what to do based on a specific response, and many other criteria. Responses can be through different channels and the system is capable of accepting the response based on the notified users' preferred method.

Next Steps for UC

The Province must develop a road map for migrating to unified communications. First, planners should identify and inventory current products that are deployed in each of the key UC areas. Most Provincial and State governments have a mixture of vendors and products that were originally acquired by different departments and groups, based on entirely independent sets of requirements. This phase will take time, but once an initial pass has been accomplished, the more important vendors can usually be identified.

In a second phase, planners should evaluate their possible strategic vendor migration, partnering and integration directions and plans. This will likely include incumbent vendors, but it may include additional vendors, as well as systems integrators, designers and service providers. A key evaluation point for vendors is how well they will be able to work with the other vendors who will be part of the long-range picture.

In a third phase, enterprises should execute their plans with selected strategic partners in phased plans. The number of products for each key UC area should be reduced.

Figure 3. Developing the UC Road Map

To be successful, enterprise architects and managers must explicitly define the end-to-end functional layers of their enterprise VoIP infrastructure and of their IP-telephony application architecture; this will clarify the tasks of integration and cost-justification.

Figure 4—UC Technology and Provider Domains, illustrates the layers of UC technology. The lower layers provide the enabling network and VoIP infrastructure (Infrastructure), while the upper layers show the IP-telephony applications and the communications-enabled business processes (UC). Viewing the enterprise in terms of these functional layers clarifies the technical aspects because the products, vendors and replacement cycles for each layer differ. Functional layering allows the cost and management for any single layer to be placed within the broader context of overall business value.

Each layer has different vendors, standards, stakeholders and functionality. Additionally, service providers can offer functionality at one layer or at multiple layers.
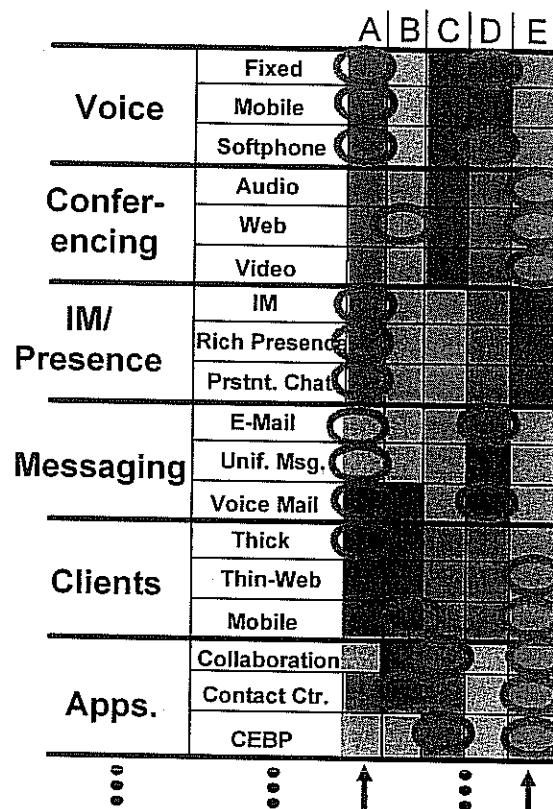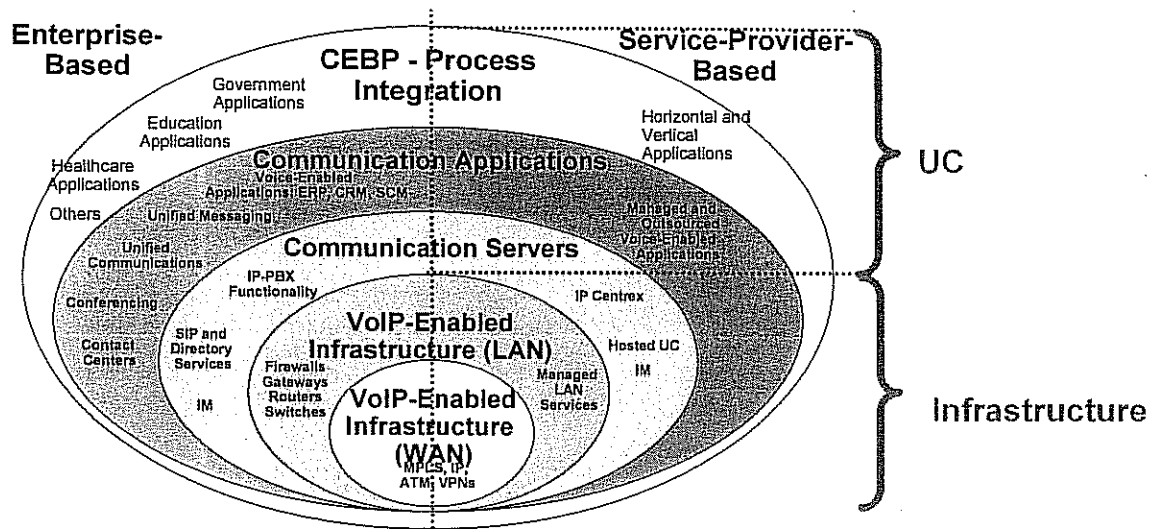
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Figure 4.   UC Technology and Provider Domains

As defined by the UC Technology and Provider Domains, the Province of Alberta SuperNet Network is considered a VoIP-enabled WAN infrastructure that interfaces with a partially deployed VoIP enable LAN infrastructure. This Domain has been successfully deployed. Over time, the LAN infrastructure with in the Province will be upgraded to be VoIP enabled as existing equipment is replaced as it reaches the end of life. It is quite possible that the business case of UC may support an acceleration of the LAN infrastructure upgrade. Given the dramatic progress in the deployment of VoIP enabled infrastructure, the Province's attention should now focus on the Communications Servers layer of UC services—as will the remainder of this White Paper.
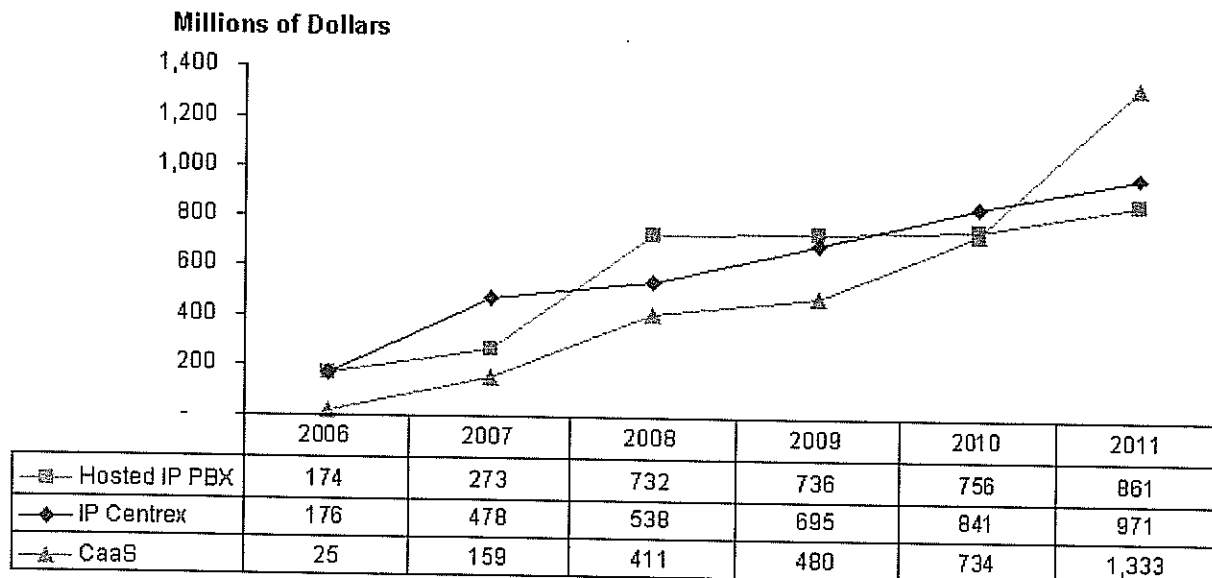
Communications Servers

The market for Communications Servers is growing fast. Gartner forecasts that the North American hosted voice over IP market will increase from $375 million in 2006 to $3,165 million in 2011.

Communications Servers are being deployed primarily in four different methods; either a managed IP communications server deployed at a customer site. Or, one of three hosted alternatives; a IP communications server hosted at a Service Provider location (such as IBM or Bell Canada), IP Centrex as provided by Local Exchange Carriers (such as Telus) or Communications as a Service (CAAS) provided by a Communications Service Provider.

Hosted VoIP growth is part of a greater industry embracement of the hosted delivery model. However, even by 2011, hosted voice is only expected to capture approximately 10% of the total North American business voice service market. Other models, such as managed VoIP and enterprise-supported VoIP continue to play larger overall roles.

Managed Communications Servers

A Managed IP PBX system (for example Cisco CallManager or Nortel CS1K) is located at the customer site, but is managed by a third party. Each managed IP PBX is dedicated to a single customer, but the platform can support multiple sites across the corporate virtual private network (VPN).

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Figure 5. Hosted IP Telephony Revenue Forecast, North America, 2006-2011[1]

Millions of Dollars

	2006	2007	2008	2009	2010	2011
Hosted IP PBX	174	273	732	736	756	861
IP Centrex	176	478	538	695	841	971
CaaS	25	159	411	480	734	1,333

Hosted IP PBX Forecast

The hosted IP PBX service represents the simplest of the three delivery models. It calls for the placement of the standard enterprise IP PBX, such as a Nortel or Cisco Call Manager, into a third-party data center. The hosted IP PBX platform can be owned by either the TSP or the end user. This infrastructure has the same functional characteristics as that deployed with traditional on-site systems. The service provider may optionally have slight hardware modifications so that the hardware is consistent with its data center rack configuration (such as Sun, HP and IBM).

The hosted IP PBX configuration is typically dedicated to a single customer. The economics therefore favor midsize and large enterprises with hundreds, or preferably thousands, of employees. However, as a dedicated system, a hosted IP PBX:

- Is better suited to customization

- Will have the most advanced set of VoIP features and services

IP Centrex

IP Centrex services are enabled through a single platform shared across hundreds of businesses. The infrastructure is owned by the Telecommunications Service Provider (TSP) with users leasing the service. These platforms are typically carrier grade, as they are designed as replacements for legacy TDM Centrex platforms. Via IP networking, a single IP Centrex platform can support the entire U.S., though best practices call for redundant systems.

This service is targeted at two primary markets. The first is the approximately 14 million TDM Centrex users, led by the state (region for Canada) and Federal Government sectors. U.S. and Canadian government agencies typically have well over 1,000 IP endpoints. This user base is price sensitive and technology risk averse. TDM Centrex TSPs (typically the incumbent carriers)

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[1] This forecast is part of a global forecast conducted by Gartner based on research and interviews with 19 industry participants from the carrier, system integrator (SI) and vendor communities.

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are likely to keep a major portion of their business should they offer a serviceable IP Centrex product—in many procurements it is the incumbents' business to lose.

Communications as a Service

CaaS is the most recent and innovative of the three hosted VoIP delivery models. It is designed to possess a utility-based pricing model that provides users with a comprehensive, flexible and simple-to-understand VoIP service. The bundled service typically includes integrated access (voice and data), a handset, local and long-distance voice services, voice mail, VoIP technology infrastructure, and advanced PBX functionality. More advanced UC features can then be added to the package, typically for a surcharge.

The CaaS offering often complemented with support services for LAN/WAN management, remote monitoring, moves, adds and changes (MAC), and QOS. CaaS is essentially an outsourced solution that requires little oversight (staff) on the end-user side. CaaS is platform-independent and can be delivered through either dedicated IP PBXs, but more likely via a shared IP Centrex infrastructure.

Hosted VoIP Drivers—All Three Models

The initial enterprise VoIP deployments from 2003 to 2005 were dominated by premises-based solutions, whereby the IP PBX was located at the customer site. Starting in 2005, VoIP service providers began to offer a hosted solution whereby the VoIP infrastructure was located at a third-party data center, as is done with a traditional telephone switch. The key drivers favoring hosted VoIP solutions are as follows:

- Robust data center. Carriers can locate hosted VoIP systems in resilient data centers equipped with backup power, physically redundant access lines, fire suppression systems, 24/7 physical security and IT security. The carrier can also provide backup VoIP infrastructure for improved reliability.

- Technical complexity. Supporting a VoIP platform is more complex than supporting TDM systems. The complexity will only increase as multimedia UC functionality is added. VoIP support also requires more highly paid staff, who can be difficult both to recruit and retain. Organizations increasingly look to third-party hosted systems (alternatively they can opt for on-site managed systems) to address this complexity.

- Technical obsolescence. VoIP vendors are constantly evolving their platform to offer increased capabilities and expanding functionality. The downside to this is that some components of the VoIP platform may have product life cycles (PLCs) of three years or less. Users increasingly want the TSP to manage this risk, particularly through IP Centrex and CaaS.

- Environmental restrictions. Enterprises increasingly cite a shortage of on-site IT data center space. Many are also looking to reduce their power consumption demands. Hosted solutions alleviate both of these issues.

- Reduced customer mishaps. Carriers also cite a preference for a hosted solution over a managed premises-based solution. Customers no longer have the chance to inadvertently unplug power cords, misconfigure wires or turn off switches.

- Operational expenditures. In many TSP hosted VoIP offerings, the provider owns the infrastructure, and leases it out as part of the service. Organizations that find it financially difficult to lay out such sizable capital expenditures prefer hosted, leased offerings.

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Hosted VoIP Inhibitors—All Three Models

The hosted VoIP delivery model is not appropriate for all organizations. While hosted VoIP is expected to gain a notable market share, Gartner expects that the majority of users will continue to be supported by on-site VoIP systems (either supported through their internal staff or managed by a third party). The key reasons why on-site systems will retain their leadership position are as follows:

- Cultural. Many companies and their IT/telecom staff have a long-established policy of maintaining an on-site voice platform. It also promotes a sense of job security to the technical support staff. Hosted VoIP will find it difficult to overcome this tradition and inertia that is part of many companies.

- Customization. Many organizations, particularly large companies, seek to leverage the full functionality of VoIP and UC. This includes VoIP integration into the governmental business processes, known as communications-enabled business processes (CEBP). This is best facilitated through an on-site system that the technical staff has full access to.

- Regulatory. The financial and healthcare sectors are operating with increased regulatory oversight through the Sarbanes-Oxley Act and Health Insurance Portability and Accountability Act (HIPAA), respectively. Many organizations interpret these regulations in a manner that favors a premises-based infrastructure over which they maintain full control.

- Trust. Some enterprises have had negative experiences with IT outsourcing and have since reverted to IT insourcing. Convincing these organizations to select hosted VoIP can be an uphill battle.

IPT Pricing Models

Figure 6—Hosted/Managed IPT Pricing Breakdown provides a hosted/managed IPT pricing template that captures the individual categories of each of the four models. The most prominent point lies in what "is" vs. what "is not" included with each model. Note that numerous cells are listed as "NI" for "not included," to indicate that the feature/service is not part of the standard IPT delivery model. Thus, the $35 differential between the CaaS and hosted IP PBX platforms will not be nearly as large once the hosted IP PBX user secures local and long-distance voice, integrated access and advanced features.

The pricing template is based on a standard three-year IPT contract with a baseline SIP handset. Five-year contracts will typically possess a further 10% to 15% discount, given the efficiencies achieved for longer-term commitments to IP PBX infrastructure, handsets, installation, operations and even LAN/WAN management.

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Figure 6.   Hosted/Managed IPT Pricing Breakdown

	Delivery Model	Hosted IP PBX	Mngd IP PBX	IP Centrex	CaaS
Infrastructure	Org Size (Employees)	Large 1k+	Large 1k+	Large 1k+	Med (100-1k)
	Handset (Optional for Shaded)	$6.00	$6.00	$6.00	$8.00
	SW Infrastructure Licenses (PBX and Voicemail Features)	$5.00	$5.00	$3.00	$4.00
	HW Infrastructure	$3.00	$3.00	$1.00	$2.00
Services	VoIP Service Management (Includes MACs)	$4.00	$4.00	NI	$7.00
	LAN / WAN Management	$2.00	$2.00	NI	$3.00
	Hosting Fee	$1.00	NI	$1.00	$2.00
	Local Voice (Dialtone)	NI	NI	$6.00	$7.00
	Long-Distance Voice	NI	NI	NI	$5.00
	VoiceMail	$1.00	$1.00	NI	$2.00
	Advanced Features (Pre-UC)	NI	NI	NI	$5.00
	Integrated Access	NI	NI	$5.00	$9.00
	Installation	$2.00	$2.50	$3.00	$3.50
	Resiliency (Clusters/PSTN)	$2.00	$2.50	NI	$3.50
	Total	$26.00	$26.00	$25.00	$61.00

IPT Pricing

Per-seat pricing is highly dependent on the size of the enterprise. Essentially, service providers secure economies of scale when supporting larger organizations and can pass these savings on to the end user. The estimated pricing differential across the four platforms by enterprise size is presented in Figure 7—Pricing Variability by Enterprise Size. The highlighted cells represent the pricing originally depicted in Figure 2; that is, the "sweet spot" of each of the four models.

Figure 7.   Pricing Variability by Enterprise Size

Enterprise Size	Hosted IPT	Managed IPT	IP Centrex	CaaS
Small (1-100)	$40.00	$40.00	$34.00	$69.00
Medium (100-1,000)	$32.00	$32.00	$29.00	$61.00
Large (1,000+)	$26.00	$26.00	$25.00	$54.00

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What are Other Provinces and States Doing?

Generally speaking, other Provinces and States are playing catch up with Alberta by focusing on the deployment of a VoIP enabled WAN and LAN. Few are at the point where they can focus on the deployment of IP Communications Servers.

Examples include:

Government of Canada

The Government of Canada, Public Works and Government Services (PWGSC) RFP entitled the Canada Government Enterprise Network Services (GENS) RFP.

The GENS RFP is intended to procure VoIP based services in two streams. The GENS Stream One contract will acquire and implement managed services and products for:

- IP Contact Centre
- IP Telephony
- IP Collaboration
- Local-Area Network (LAN)
- Secure Perimeter

The GENS Stream Two contract will procure WAN products and services.

State of Georgia

Over the past three years the State has successfully deployed an VoIP enabled WAN infrastructure using MPLS services. Last year the State negotiated a Hosted VoIP contract that includes the deployment of a carrier grade VoIP infrastructure at the Provider's data center, along with a load sharing duplicate infrastructure at the State's Data Center.

Figure 8 Replicated Data Center Design illustrates the State's architecture if used within the Province of Alberta

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Figure 8. Replicated Data Center Design
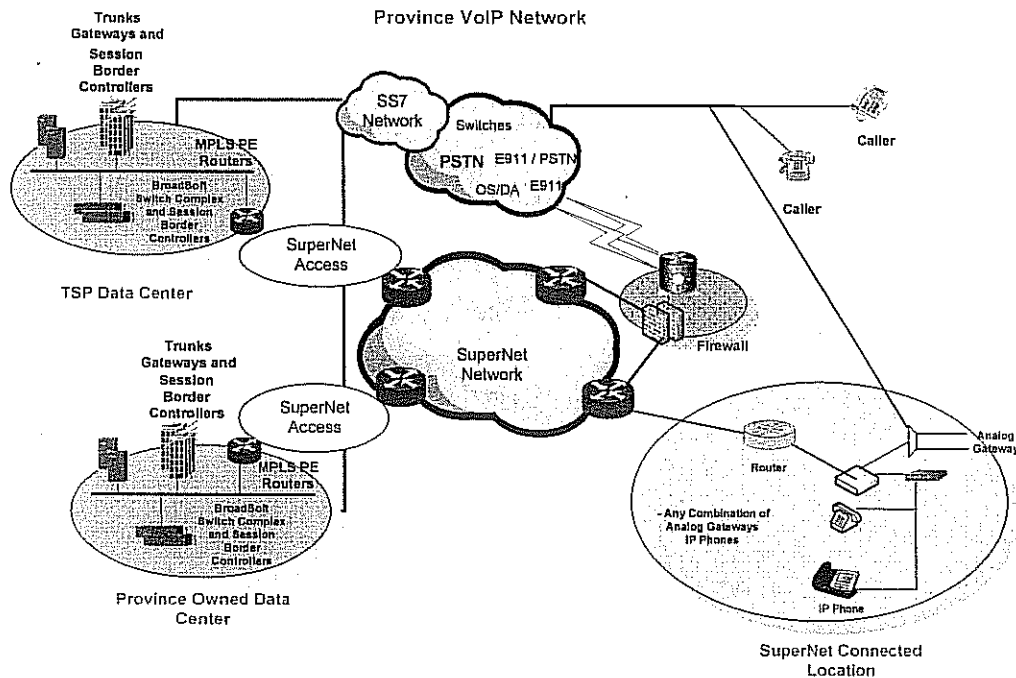
State of New York

The State is deploying two VoIP Communications Server Based Public Safety Answering Points (PSAP) to handle 911 calls. The VoIP Communications Server architecture was selected in recognition of the superior call rerouting capability of VoIP. The events of September 11, 2001 revealed a venerability in the PSAP architecture when one PSAP was rendered inoperable and calls were not quickly rerouted. The new VoIP architecture allows for the immediate rerouting of calls to either a secondary PSAP or a temporary facility.

State of California

The State recently went through a two-year procurement process that resulted in an award to Verizon to provide hosted VoIP services. The services are the equivalent of Centrex IP services

Generally speaking, Gartner is finding states who are currently Centrex customer to be purchasing a hosted IP alternative (either IP Centrex or IP Hosted). We are finding states who have PBX infrastructure tending to deploy IP PBX based communications servers. We believe this trend reflects the desire of states to leverage existing capital and operational investments.

We are finding some states and large county/municipal governments (e.g., the County of Los Angeles with 130,000 employees) choosing to deploy a hybrid model of hosted VoIP for small, remote and Centrex replacement locations, while deploying premise-based VoIP Communications Servers as a replacement for PBXs and for those locations with complex Contact Center requirements.

What Is Next for Alberta?

Alberta has a tremendous advantage over other provinces, states and other governmental networks in that the SuperNet network was designed from the ground up with a Class of Service and Quality of Service Architecture that is foundational to the deployment of VoIP services. Unfortunately, Alberta's leadership position makes it difficult to find peers who are executing a superior ICT plan. But we can find examples of organizations who face the same decisions within the commercial sector. These companies are focused on developing a comprehensive UC strategy to facilitate the communications needs of the evolving employee and the emergence of the "always-on" employee. Once the strategy is developed these companies focus on the deployment of VoIP communications servers that will function as the media gateway between all communications tools.

Based on a high-level review of the Province's costs for traditional Centrex, a case could readily be made that the Province could substantially lower the cost of communications while potentially dramatically increasing the functionality of communications through the deployment of IP-enabled communications servers. Given the Province's experience with using hosted service providers and the potential to leverage capital and operation investments within SuperNet, it appears replacing the existing hosted Centrex with a hosted VoIP service would appear attractive. Given the large potential gain from a transformation to VoIP services, we would highly recommend developing a road map for the deployment of UC.

At a high level we would recommend the road map include the following:

Summary of Areas to Consider as Part of the Road Map

- Voice and Telecommunications: Includes fixed voice, mobile voice and softphones. Can include within building as well as remote access.

- Conferencing: Includes audio, video, and Web conferencing. Can also include meeting room technologies, multipoint Webcam approaches, and unified or integrated conferencing solutions.

- Messaging: Includes e-mail, voice mail and unified messaging.

- Instant Messaging (IM)/Presence: Includes IM, presence and rich presence aggregation (the ability to aggregate and publish presence and location information from multiple sources).

- Clients: Includes thick clients, thin Web clients and mobile clients. This may also include limited software dashboard clients for imbedding within IT applications.

- Applications: Includes applications that have integrated communication functions. Four key application areas are consolidated administration tools, collaboration applications, notification applications and contact center applications. Over time, however, many other applications will be communication-enabled.

Phase 1: Evaluate current products and plans, while also developing a vision and strategy

- Identify inventory of communications products and solutions.
  - ❏ Use the six areas in figure 3 as a starting place for what to include.
  - ❏ Identify partners, business owners, stakeholders, current plans and contracts for each.

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- Develop a communication vision and strategy to drive the business cases.
    - ❏ Have at least three future scenarios for each area in Figure 3 - Developing the UC Road Map. This will help communicate and clarify the benefits of UC.
    - ❏ Often, these scenarios will combine elements from multiple technology areas, for example, presence and telephony.
- Evaluate network and application infrastructure.
    - ❏ Do the LAN and WAN have sufficient capacity and reliability for voice and video?
    - ❏ What is the enterprise application architecture? For instance, is it largely a "Java shop" or a " .NET shop"?
    - ❏ How will wireless solutions be integrated into the broader communications architecture and applications?
- Define the high-level enterprise UC road map.
    - ❏ Feedback from business units on scenarios will provide prioritization guidance.
    - ❏ Include plans for all the areas in Figure 3 - Developing the UC Road Map , on the road map, but it is not necessary to evolve all areas at the same time.
    - ❏ Ensure that separate area plans are integrated into the broader plan.

Phase 2: Identify strategic provider partners and whether they match to the enterprise road map

- Evaluate current and potential strategic partners.
    - ❏ Include products and services.
    - ❏ Review plans for each area in Figure 3 - Developing the UC Road Map.
- Compare road maps and plans.
    - ❏ Match potential partner plans to enterprise plans.
    - ❏ Understand which partners can work together.
    - ❏ Balance the preservation of existing investments with the need for new or additional functionality.
    - ❏ Make the initial decisions for strategic partners and the road map.
- Develop a detailed enterprise road map.
    - ❏ More detail for the first and second years, less for three to five.
    - ❏ Include all the areas in Figure 3 - Developing the UC Road Map.
    - ❏ Prioritize and use phases.
- Conduct pilots and trials.
    - ❏ New technologies require more evaluation and training.
    - ❏ Select trial groups that provide meaningful data.

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Attachments

About the Author

Mark E. Gilbert,

Director, Gartner Consulting

With over 30 years of experience in the communications industry, Mr. Gilbert has been involved in some of the leading telecommunications projects for Government agencies in North America – Including the Government of Alberta SuperNet project. In 2002, be began advising the Government of Alberta by participating in the evaluation of proposals and best and final offers from potential SuperNet providers. He also participated in the provider selection team that recommended the Bell Canada and Axia partnership. Following the selection he provided GOA with technical, strategic and business advice during contract negotiations—he was often at the negotiation table. Mr. Gilbert also facilitated the Bell, Axia and GOA Network Design Committee which was responsible for establishing the SuperNet architecture. Over the past few years he has been asked to assess the performance of SuperNet and SuperNet providers.

He has also advised the States of Florida, California, Ohio, North Carolina, Georgia, Alabama and many others on telecommunications strategy and policy. He has also moderated VoIP workshops at the annual conferences of the National Association of State Telecommunications Directors (NASTD).

Mr. Gilbert earned his Bachelors and Masters of Business Administration from the University of Southern California.

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