Strategic Planning for Unified Communications

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What is “Unified Communications”? 
The term “Unified Communications” (UC) represents a very broad concept that has been defined differently by hardware and software vendors, service providers and enterprise customers. UC is an umbrella term that represents productivity-enhancing communications tools that are integrated to offer a unified experience in terms of both usability and manageability. Despite the large amount of hype and vendor claims to the contrary, UC is not currently provided by a single product or technology but rather as a solution set with several components. These components include:

- Voice over IP (VoIP), IP Telephony (IPT) and/or IP Contact Center (IPCC)
- Unified Messaging (voicemail and email)
- Secure instant messaging
- Audio, video, and web Conferencing
- Desktop productivity software
- Scheduling and calendaring tools
- Shared online workspaces
- “Service enablers”
  - Presence awareness and management
  - Location-based services
  - Directory services

UC combines these capabilities into a single set of intuitive tools that together can increase individual productivity, accelerate business processes and improve the quality of internal and external collaboration. Most of the tools outlined above have proven their value to the enterprise independently. When integrated and enhanced with new features such as shared online workspaces and service enablers, their value extends far beyond their original scope.

The concept of UC also connotes mobility, or delivery of the above capabilities on any device at any location and any time. Fixed-Mobile Convergence (FMC) solutions to date have primarily focused on providing voice telephony services in this manner; however, the next logical evolution for FMC is to provide application access using a similar approach. Today this access is most often provided as customer premise equipment (CPE) solution in a client-server configuration to provide PBX extension functionality; examples of this approach include:

- Avaya one-X Mobile
- Cisco Mobility Manager
- Siemens Mobile Connect
- Microsoft Communicator Mobile

In the near future, these capabilities and many others will increasingly become available from the network as service providers begin to leverage the capabilities of the IP Multimedia Subsystem (IMS) reference architecture and related standards.

One of the greatest challenges that enterprise organizations face regarding UC is developing a strategic plan and deployment roadmap that supports business imperatives, delivers the features that users need and generates positive economic value. This whitepaper directly addresses that challenge, outlines an approach for UC strategic planning and provides a high-level example of an enterprise UC transformation plan.

What’s Driving the Adoption of UC? 
There are a number of macro issues in the current global business environment that can create significant challenges for customer organizations. For example, consolidation in an industry sector that results in a high rate of merger and acquisition (M&A) activity can intensify competition, making it more difficult to maintain performance, increase innovation and sustain market advantage. As the world economy becomes increasingly globalized, operating consistently in all geographies and increasing collaboration between employees becomes much more complex. Virtualization of resources and information is accelerating, increasing an organization’s reliance on partners; this requires a focus on integration and performance while raising the requirement to manage risk.

The emergence of a mobile society, driven by the need for access to information anywhere and at any time, has resulted in a proliferation of applications and devices. Day to day communications, both inside and outside the enterprise, has become much more multi-modal. The range of applications, devices and connectivity options used is rapidly growing, which increases management complexity and the need to provide high availability.

Companies are increasingly looking to IT to make a material difference in supporting business objectives and overcoming these challenges. The business priorities most often cited by executives in recent years, range from business process improvements to creating new and innovative products and services and depend on retaining existing customers and the ability to attract new ones. Innovation internally and externally relies on new technology enhancements to both accelerate and maintain business growth.

What are the Benefits of UC? 
If properly planned for, architected and implemented, UC solutions support all of the requirements outlined above and delivers value to the organization in three general categories:

- Personal, which focus on the needs of individual employees
- Workgroup, which is centered on the needs of small teams
- Enterprise, which includes integrating UC with key business processes and corporate applications

On a personal level, UC enables employees to become more efficient and effective in their everyday communications. With features such as Presence, Instant Messaging (IM) and an integrated directory, the effort in connecting with another employee can be greatly reduced. Integration with other services and applications, including audio, video and web conferencing, facilitates employee collaboration on both the personal and workgroup level; many solutions offer integration with Outlook, Lotus Notes and other messaging/calendaring systems. Most of these solutions offer the capability to rapidly escalate from one communications tool to another.
End-user behavior is changing as well; from a communications services perspective, the same user may now need to take on multiple personas throughout their day. These personas are dependent upon the user’s role at any given time, such as employee, family member or part of a civic organization. Each of these personas may subscribe to a different set of services and directory numbers or have separate rules to determine who can reach them where and at what time. The users should be able to switch between personas in real time; ideally, the communications network should be able to manage these personas and allow the user to seamlessly switch between them.

While the above capabilities benefit the end-users directly, the main source of UC business value is realized at the enterprise level by improving the way that organizations interact with business partners, vendors, customers and employees. UC provides the capability to extend enterprise communications and collaboration outside the organization to a broader ecosystem of high-value partners – the proverbial 20% that drives 80% of revenue. Many large companies have invested significant time, money and other resources to develop shared partner extranets in support of these objectives; for example, the Automotive Industry Action Group (comprised of GM, Ford and Chrysler) created the Automotive Network Exchange (ANX) as a private network in 1995 to facilitate interaction between the automakers and the partners with whom they do business. The ANX enabled the re-engineering of supply chains by connecting trading partners and electronically allowing them to collaborate on product design and development, soliciting and processing orders and facilitating just-in-time manufacturing and post shipping schedules. Over 4,000 companies have joined the ANX network since its inception.

The benefits to an organization – to an entire industry – of an asset like the ANX are obvious. Many companies simply do not have the requirements or resources to build a collaboration environment to this scale; however, most companies could benefit by the improved interactions between key stakeholders on a real-time (or near-real-time) basis. This provides a unique opportunity for communications service providers who have a rich history of delivering robust managed voice and data solutions with the scalability and reliability required by the enterprise.

Yesterday’s business communications environment was characterized by separate, service-specific networks, each with their own transport, equipment and support solution. This disparate environment would simply not have supported the demands that UC places on the wide-area infrastructure. Today, technologies such as Multi-Protocol Label Switching (MPLS) enable the convergence of these networks. MPLS-based Virtual Private Networks (VPNs) have been moving into mainstream adoption based on the value delivered to enterprises; for example:

- Agility through rich features, application convergence and multiple access technologies
- Reliable performance, security and Class of Service (CoS)/Quality of Service (QoS) for applications
- Cost control and savings through scalability, moves/changes and simplified management
- Simplified disaster recovery and web-based operations

Just as MPLS has enabled the convergence of separate networks, the Internet Protocol (IP) family of network protocols is enabling the convergence of applications. Traditional communications services (including voice, messaging and conferencing) are being combined in new ways using IP to create new capabilities such as Unified Messaging, Click-to-Call and Click-to-Conference. Enabling services, such as Presence, Location-Based Services (LBS) and centralized Directory can be integrated with traditional line-of-business and supply chain applications to create new ways to streamline communications and interactions between a company and their partner ecosystem. The adoption of IP in wireless and wireline carriers is enabling the delivery of these applications and services across a broad range of fixed and mobile endpoints. In the UC environment, IP Telephony and Voice over IP (VoIP) become two real-time applications in the portfolio used to support business communications requirements.

Why is UC a Strategic Issue?

Unified Communications can be a very difficult topic to understand and apply in enterprise business and IT organizations. The sheer number of disparate technologies to be integrated is challenging enough; the fact that UC is actually an emerging meta-technology comprised of several new and existing communications tools, applications and modalities further complicates the picture. The primary objective of this project is to present a recommended strategic planning methodology for UC supported by a representative enterprise transformation plan. In the context of this whitepaper, the term transformation refers to the scope and scale of applying UC in an enterprise environment.

The migration to UC is much more complex than the transition from “legacy” voice services (for example, Time Domain Multiplexed (TDM) network services, analog and digital Private Branch eXchange (PBX) systems, the Public Switched Telephone Network (PSTN)) to IP-based voice services (Voice over IP (VoIP), IP Telephony (IPT) and/or IP Contact Center (IPCC) services) due to a number of factors including:

- The primary value proposition for UC is the capability to embed communications capabilities into key business processes to reduce the cycle time usually introduced by “human latency”, or the inherent delays that exist today in standard communications modalities (phone tag, voicemail, etc.). This requires a shift in the relationship between the Information Technology or Telecommunications function and the business unit organizations; rather than new technology being a “push” from IT to the business, UC must be planned and designed as a “pull” in the opposite direction in order to achieve maximum value and alignment with core business imperatives. This requires significantly more involvement across the enterprise (think ERP, CRM or other "business-focused” project rather than a simple facilities upgrade)

- The application development, delivery and support organizations play a much larger role in UC than VoIP/IPT
- UC also usually connotes mobility, or delivery of UC capabilities to any device at any location and any time
- UC requires many more interfaces or system integration points to many different components and technologies (e.g., Presence Management, Directory Services) than VoIP/IPT
From an operational support perspective, the migration from legacy to IP-based voice services has driven many IT organizations to reconsider their voice and data support infrastructure(s) including the people (both quantity and skillset), processes (e.g., “are you having a voice or data problem?”) and tools (including type, quantity, licensing and locations). While the potential business impact of UC by definition is greater than one of its parts, the decision to implement such a solution is definitely a strategic one at this point in the product and technology lifecycle.

How Do I Plan for UC?
Strategic planning for UC is critical to enabling enterprise organizations to understand the relative business impact of multiple UC solution alternatives in order to make the most informed business decision. The approach should begin by working with key business and technical stakeholders to understand their key business requirements and constraints as the most effective IT integration projects tend to be those that are most closely aligned with and best support the requirements of the business units.

The requirements discovery and data collection process should be performed using a combination of facilitated working sessions and in-person interviews. In many cases, particularly with new technology, the groups involved may not be aware of the solution’s capabilities and therefore don’t know what questions to ask. As a result, the facilitated working sessions can be valuable educational events as much as a requirements discovery process. The working session can then be followed up by individual interviews. This not only allows further clarification of the information collected but also provides the interviewee with the opportunity to bring up considerations that may not have been appropriate for group discussion. It is crucial during this process to collect information from the IT/Telecom department as well as any business units who may be impacted by the final solution decision. This ensures that the “voice of the customer” accurately represents the views of the end-user (and often sponsoring) organization(s). From these requirements, technical and functional needs can then be determined.

A critical point to understand is that the business, technical and functional/operational requirements identified are often in conflict and must be balanced with corporate financial constraints, risk tolerance and other factors. To illustrate this point, consider the availability requirements for two hypothetical facilities: one, a retail sales outlet, is open from 10AM to 10PM, Monday through Friday; the other is a manufacturing location that operates three shifts 24x7. The cost of downtime for each location is likely very different, with the availability requirements of the manufacturing site likely justifying additional investment. Availability similar to the Public Switched Telephone Network (PSTN), or “five nines” (99.999%, or “5 minutes of unscheduled downtime per year), is achievable in an IP-based environment; however, achieving that level of availability requires redundant equipment, redundant circuits and possibly redundant personnel which drives up the overall cost of the solution.

At this point the existing voice and data environments should be evaluated to develop a configuration and performance baseline and to identify any potentially significant, project-affecting issues that require remediation prior to migration. A baseline assessment of the voice and data networks should include topology, configuration and utilization or performance information. This data can then be compared to industry, vendor and IT best practices. Any resulting gaps should be clearly identified with recommendations for resolution. The costs to resolve these issues must then be factored into any downstream economic analysis to determine the full impact.

Armed with the information developed thus far, attention should then be turned to the desired future state. Multiple future states or alternative solutions may be developed; for example, one organization may choose to compare scenarios based on a product vendor such as Cisco or Nortel. Other companies may have made a vendor decision based on other processes and choose to evaluate migration schedules (e.g. aggressive vs. conservative) or deployment approaches (e.g., premise-based, network-based or hosted). In either case, each solution alternative must be developed as completely as possible to enable the most accurate analysis.

The following components should be determined at minimum for each solution alternative to be compared:

- A Bill of Materials for all hardware and software components
- An architecture diagram showing solution topology and configuration
- Capital costs for solution acquisition
- Non-recurring operating expenses, such as professional services and installation
- Ongoing operating expenses, such as telecommunication circuits or managed services

Once the solution alternatives have been fully developed, it is a very straightforward effort to determine the alignment of the solutions’ capabilities with the key business requirements. The overall costs and benefits to the organization, or business impact, can be determined with a degree of accuracy that is directly proportional to the validity of assumptions and quality of the economic data used. Sensitivity analysis, in which each constituent’s level of confidence in a given cost element or other data point is used to weight its value, can often be very helpful in obtaining broader consensus on the results.

What Does a UC Roadmap Look Like?
Based on the selected solution alternative, a roadmap (or order of operations) can be developed. The format of the roadmap can vary depending upon the specific requirements of the company performing the development. Some IT organizations need to create a roadmap based on a timeline, while others choose to take more of a “cost vs. benefit vs. complexity” approach. In this mode, the first section of the roadmap identifies items with the most return for the least investment or “low-hanging fruit”. These items are usually quick(er) to fix and can be addressed with division-level authority. The next roadmap section identifies recommendations that are usually more complex and may require a project to be sanctioned but can still be addressed within the IT department. The final section identifies work efforts that are more strategic in nature, are likely to require projects to address and may cross organizational boundaries. There is no “best” way to view the results; each may have value depending upon the specific customer, technology or solution.
For most enterprise organizations, the adoption of UC will be evolutionary rather than revolutionary. An example approach is outlined in Figure 1 above that could be applied to many enterprise environments at any step in the migration process. This model identifies incremental benefits with each phase while building a solid foundation for new and emerging IP-based services. These steps may occur sequentially or in parallel depending upon the specific environment to which they are applied.

In this example roadmap, the first and most important step is to enable the IP network infrastructure to support real-time services. On the Wide Area Network (WAN), this may include implementing or migrating to transport services such as Multi-Protocol Label Switching (MPLS) which provides traffic segregation, enhanced capabilities for Quality of Service (QoS) and increased options for supporting on-net voice traffic. On the Local Area Network, traffic segregation is provided by an appropriately-designed Layer 2 Virtual LAN (VLAN) architecture. Different but related QoS mechanisms are required, as is a comprehensive, layered approach to securing the converged infrastructure.

The next step is to deploy or optimize the messaging and collaboration application environment. If existing applications are already in place, hardware and software upgrades may be all that is required to enable Unified Messaging and Directory capabilities (e.g., Microsoft Exchange and ActiveDirectory). Other services such as Presence and client-based Single Number Reach may require additional core systems and remote clients to be deployed. These systems can be deployed either on the customer premise or in service provider data center as required. A comprehensive requirements analysis effort is strongly recommended to ensure that the applications with the most positive business benefit and technical alignment are selected.

Enabling the voice infrastructure assumes that IP-based voice services are being or have been deployed in the enterprise environment. Integrating voice with the messaging and collaboration application infrastructure provides true UC capabilities. Further, expanding UC capabilities with knowledge workers in an organization’s contact center maximizes the technology investment. These applications and service enablers can be delivered to both fixed and mobile users as needed. Many organizations use this effort as an opportunity to begin standardizing their platforms and centralizing services. Both of these initiatives are often recommended to fulfill key business goals such as increasing operational efficiency and cost management.

These steps outlined above provide a clear and solid foundation to leverage new services and capabilities as they become available. Communications services providers around the world are building cutting-edge Service-Oriented Architectures (SOAs) in which key service enablers such as Presence and Location-Based Services will be provided as network functions. This means that their enterprise customers will eventually be able to access this information in real-time from the network via an open Application Programming Interface (API). New capabilities such as seamless mobile application access and the concept of a “Single Phone Number for Life” will become available as a result of moving to an all-IP service delivery environment.

In today’s challenging global business environment, it is crucial to determine where the most return on technology can be found with the least cost and most manageable risk. If a solution is not aligned with an organization’s key requirements, then it becomes technology that is implemented for its own sake. The ultimate goal of the strategic planning and roadmap development effort is to ensure that enterprise organizations have the information that they need in order to make informed decisions for maximum business benefit.
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