

A Forrester Consulting Thought Leadership Paper Commissioned By Avaya

Redefining Communications

Standardization And Componentization Create Efficiency And Innovation And Bring Business Value

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FORRESTER

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About Forrester Consulting

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Executive Summary

Our world is made up of building blocks. Those building blocks — or components — are assembled to create both our physical and digital worlds. Think of the pieces of LEGO and their standard dimensions, which facilitate a solid construction of an initial model but enable endless configurations based on those component pieces. Or think of the gauges of railroad tracks that enable transport of goods and people across countries; once standardized, rail systems were integrated and railroad travel and transport skyrocketed.

Within the digital world, much of the technology infrastructure and applications we use today are made up of components that are integrated based on standard interfaces. Complex technologies and even industries break down into components that can be combined in different ways to meet specific needs or local environments. An ecosystem of players contributes components that can be easily integrated to create an efficient, feature-rich whole — or customized to meet specific requirements.

Communications technologies have evolved to enable componentization. Functional building blocks such as messaging, presence, instant messaging, calendaring, contact lists, and video conferencing can be combined to create communications solutions to meet the requirements of diverse customers and end users. These applications are delivered through a componentized infrastructure — made up of network infrastructure, hardware, operating systems, middleware, the applications themselves, and a wide variety of client devices — and by a componentized value chain consisting of those who make the components, provide the networks, and provide the solutions and support.

This industry evolution can occur only when agreed-upon definitions emerge to facilitate that integration — within both the product development itself and the solution assembly and delivery. Defined interfaces facilitate an efficient specialization in the industry and enable innovation, as new components can more easily be developed to improve and extend functionality. The communications industry has proposed, adopted, trialed, and rejected many protocols and interfaces. Session Initiation Protocol (SIP) has emerged as the standard upon which unified communications solutions are built today. SIP supports innovation by developers, communications services providers, and solutions integrators — and easily delivers this innovation to system owners and end users. By flexibly defining services, SIP facilitates integration and interoperability of a wide range of functionality across multiple devices delivered across disparate networks.

Despite the promise, unified communications adoption in the enterprise has been slow to take off due to interoperability issues, internal end user IT constraints — such as siloed IT organization and expertise — and an inability to articulate and adequately quantify the return on investment. However, as the market matures with increased use of standards, the evolving componentization, and compelling use-cases, adoption is increasing. Enterprises can provide a better communication experience for their employees by providing access to a wide range of functionality across the devices that end users require. They can integrate communication into enterprise applications to streamline and accelerate business processes. And they can extend beyond the enterprise to bring suppliers and other partners into their communication network — how and where appropriate. The ability to create custom solutions that fit the diverse requirements of enterprises — and demonstrate a compelling return on investment — is made possible through the standardization and componentization of the unified communications market.

In October 2010, Avaya commissioned Forrester Consulting to evaluate the extent and value of componentization within the unified communications and collaboration market. In conducting in-depth interviews with a dozen business

and IT professionals experienced both in unified communications and collaboration (UC&C) and in mature componentized industries (e.g., oil and gas), Forrester found that those companies using a modular UC&C architecture achieved the business benefits associated with UC&C sooner — including better collaboration resulting from faster connections to decision-makers and experts, faster cycle times resulting from reduced human latency, and better customer service from connecting customers and their questions to appropriate internal resources faster. Those companies with modular architectures were better able to see and plan for integration of communications into business process, often looking to leverage the latest innovations. In addition, IT professionals and system owners derived benefits from being able to leverage existing heterogeneous environments and a single management and security infrastructure on which to build the network foundation for their UC&C deployments.

Key Findings

Forrester's study yielded three key benefits for system owners and users of modular unified communication solutions:

- **Rapid consolidation/integration** of disparate or heterogeneous infrastructures, which accelerates benefits of the UC&C solutions and optimizes the IT management. One government organization we spoke with brought together 12 independently architected networks with equipment from multiple data networking, collaboration, and voice system vendors into one uniformly managed network, streamlining the organization and processes required to maintain and operate their nationwide deployment.
- **Easier optimization** of communications channels to the tasks at hand and end user preferences, thus reducing human latency in complex business processes. One high-tech firm streamlined its contact center operations by consolidating its global call queues, resulting in improved first-call resolution, nearly a 30% reduction in toll charges, and millions of dollars in reduced maintenance costs.
- **Simplified management** of the entire network within the enterprise and with external parties (i.e., both on-net and off-net). An educational institution we spoke with optimized network utilization management uniformly across all its voice, video, and data applications, thus avoiding planned capacity upgrades — and the capital outlay — for nearly seven years.

The Value Of Componentization

Our world is made up of building blocks — or components — which are assembled to create both our physical and digital worlds. Just like LEGO building blocks, their standard dimensions enables the construction of simple models but there are endless configurations possible based on the component pieces.

Gauges of railroad tracks are another example that enable transport of goods and people across countries; once standardized, rail systems were integrated and railroad travel and transport skyrocketed. Automobile manufacturing has componentized to such a degree that the

“manufacturers” are now referred to as aggregators in some circles. The componentization of these industries provides a valuable analogy for the componentization of the digital world, and specifically of communication technologies. The standards defined to enable integration across the transport supply chain, for example, are analogous to the standards that enable an ecosystem of players to contribute components into modular communications architecture, as is the value that standards and componentization bring.

Within the digital world, much of the technology infrastructure and applications we use today are made up of components that are integrated based on standard interfaces.

Communications technologies include a wide range of such building blocks. Functional building blocks such as messaging, presence, instant messaging, calendaring, contact lists, and video conferencing can be combined to create communications solutions to meet the requirements of diverse customers and end users — just as a motor, a transmission, and a chassis of any color can be combined in various permutations to meet the needs and desires of a car buyer. However, in order for these components to be combined effectively, the interfaces that govern the integration must be well defined. Simply put, if the peg is square, it must have a square hole to go into. These definitions become “standard” — and that componentization becomes possible — as an industry evolves.

This paper will outline the current state of unified communications technologies and illustrate the value of componentization and the prerequisite definitions of standard interfaces as they have emerged. In its current state, unified communications technology is characterized as follows:

- Communications technologies include a range of functional building blocks (e.g., messaging, presence, instant messaging, calendaring, contact lists, and video conferencing).
- Building blocks can be combined to effectively meet end user requirements.
- Well-defined interfaces based on SIP, a standard communications technology, enable the development and assembly of communications components.
- Further refinement and specification of SIP will facilitate the integration and embedding of new components and spur additional innovation in communications technologies.

The following section will present several historical analogies of componentization and the value it brings to end users, as well as to the players in the supply chain. The following sections then discuss the role that componentization has played in the technology industry before moving into the specific benefits of componentization of unified communications. To conclude, we will illustrate a path for increasing componentization via industry-defined and industry-agreed component interfaces, with the corresponding benefits of the resulting interoperability.

Historical Precedents Demonstrate Componentization Value

Interconnectivity brings value — with numerous examples across industries. In the early 17th century the fire hose began to replace the bucket brigade for putting out fires. However, the one disadvantage of the early fire hose was the lack of interoperability; manufacturers equipped their hoses with different sized couplings. On “mutual aid calls” fire departments could not connect to one another. By the 19th century, the need for interoperability was recognized, and the International Association of Firefighters defined the first fire hose coupling standards. Mutual aid calls remain a common practice today, with standard threading enabling interoperability of hoses, fire engines, and fire hydrants.

Although the fire hoses example is rather basic, the message holds across other industries. Similar standardization has enabled the development of complex value-added supply chains in oil and gas, facilitated the componentization of automobile manufacturing producing customized cars, and allowed the development of multi-model transportation networks. These industries provide analogies to a complex supply chain in which product developers, component vendors, solution aggregators, system integrators, and service providers bring componentized unified communications to the market.

Oil And Gas

The regional specificity of oil and gas has led to the standardized chemical composition of gas or oil — that is, the specific sulfur content — which enables transport among different refining facilities. This definition of grades of refined products allows them to be put into the pipelines and tankers for distribution to lucrative markets. Before those definitions were uniformly defined and adopted, the oil and gas industry had been monolithic for fear of “contamination” with undesirable grades within a facility, pipe, or tanker. As standard measures were defined, players could specialize in a specific stage of the exploration, production, and supply chain, creating efficiencies within the industry. According to experts in the industry, the advantages of standardization included:

- **More efficient exploration and refining of raw material.** The definition of grades for production has led to a greater understanding of the finished goods that can be produced. Multiple smaller companies have entered the industry, providing specialized exploration, logistics, and manufacturing capacity to speed the flow of finished products to market.
- **Greater margins through reduced logistics costs and optimization.** Refineries were historically located close to their source of raw materials and subsequently optimized for their regional specific grade(s). Standardized refining processes for various grades enabled production of standardized products and by-products. Costs could then be further recouped by open trading of by-products for foreign demand. Refineries could also further optimize their product portfolio for local demand through the addition of necessary grades from different regions.

Automotive

Componentization has opened the playing field, enabling smaller manufacturers to enter the market. Being able to rely on component suppliers provides greater flexibility and more manageable inventories and allows manufacturers to focus on assembly for the end customer. As a result of going modular, one smaller Northern European auto manufacturer was able to extend its range of models and deliver them to the market faster.

"With the traditional assembly process, you can usually manufacture just one car per assembly line. In our case, being one of the smaller players, we don't have the volume to justify setting up multiple assembly lines, so we have to use one line for all the varieties of a model." (Vice president for strategic sourcing at a European car manufacturer)

"If you are a car manufacturer and design your own seats, you will probably have a new generation of seats every 10 or 15 years. But if you go to a mega supplier, it will probably have eight seat generations in parallel development at any given time."¹ (Vice president for strategic sourcing at a European car manufacturer)

Just like the LEGO example above, standardized component pieces can be assembled into a number of new combinations. As a result, the component nature of automobile manufacturing brings value to both the manufacturers and the buyers:

- **Buyers are offered more choice and customization.** Outsourcing of component parts does more than save money. It gives customers unprecedented freedom of choice. The system of suppliers and their ability to produce finished components such as doors and bumpers enables new models to be built 100% to customer order. Virtually every car is different.
- **Engineers focus on innovation, providing buyers with better designs.** With these standard features supplied by component manufacturers, engineers are able to concentrate on the features that make the designs unique — the innovation.

Railroads And Multimodal Transport

A closer analogy to the communications industry is the transportation or logistics industry, starting with railroads and moving into multimodal transport. Think of IP packets as the cars traveling across the rails, and eventually the containers that are loaded from truck to train to ship. Railroads originally developed locally with railroad gauges of different widths, varying not only across countries but also regionally within countries. Eventually, a standard width was agreed upon, enabling cars to be transferred across borders. Similarly defined standards eventually enabled containers to be transferred directly from a truck or train and onto a ship without unpacking and repacking of the contents. Cargo now moves faster, planning is more efficient, and shipments can be space-optimized for higher margins.² As the handoffs grew more efficient, modes of transport were expanded, with new players and branches in the supply chain.

The analogy to communication technology is obvious. With packet-based technology and defined interfaces to enable the handoffs, contents do not need to be unpacked and repacked; instead, they are passed along to efficiently reach their destination via a variety of modes of transport.

Componentization — And Its Value — Within The Technology Industry

Within the digital world, much of the technology infrastructure and applications we use today are made up of integrated components. Complex technologies and even industries break down into components that can be combined in different ways to meet specific needs or local environments. In many technology domains an ecosystem of players contributes components that can be easily integrated to create an efficient, feature-rich whole or customized to meet specific requirements.

What is a component within IT? A component is a separate, encapsulated entity that provides a service to the application and functionality to the end user and, by virtue of its separation, is easier to integrate, manage, and upgrade. Examples include embedded databases, enterprise service buses, messaging middleware, and collaboration functionality such as presence or voice capabilities.

Platforms with defined interfaces that facilitate the integration of new functionality contribute to the componentization of a product stack.

As a result of such defined and agreed-upon interfaces and the resulting ability to leverage components:

- **Product developers can focus on innovation and eventually speed time-to-market.** Rather than reinventing a web server or database to be used by an application, developers can embed existing components and instead focus resources on the new and innovative functionality. In early stages of new innovation, developers often create an entire product from scratch. However, as the product evolves and becomes increasingly complex and market demand increases, developers look for component pieces to accelerate development, free up resources for innovation, and speed time-to-market. This internal componentization creates efficiencies in product development.

“Those who work at the outer edges of technology have to consume components from someone else to continue to work at the outer edges and innovate. This is a cost-effective method; creating the components is not their core competence.” (Senior telecommunications architectural strategist)

“Even for an innovative software application, there are benefits from componentization purely from an internal perspective as it makes it easier to collaborate, share the workload, [and] test. [T]here is a potential for re-use, for economies of scale . . . so even if the software is totally brand new and no one has done anything like it, an experienced software company would adopt some kind of componentization, even if those components are entirely produced internally and entirely consumed internally.” (Senior telecommunications architectural strategist)

- **New players can provide incremental value.** The increasing complexity drives external componentization as well — to enable additional functionality, to support additional end user devices, to improve product performance or management. New versions of a product can be developed by other members of the ecosystem as interoperable add-ons. For example, the ability to use any manufacturer’s mobile phone on a GSM network anywhere in the world — when phone manufacturers and mobile network service providers adhere to the 3GPP GSM standards — enables a robust developer network to build other applications on those devices that take advantage of their connections to voice and data networks.

“Our web proxy is a good example, where instead of assuming a stack, we have set up a proxy for lots and lots and lots of web-based services to start calling into a UC[&C] environment. That allows us to move at a much faster pace where the innovation at the end of this can be on a mobile device, or a customer facing website, or a social software stack. This plug-in model, which is core for our clients, has allowed an ecosystem to move forward.” (General manager of global collaboration of a leading IT services enterprise)

“Being able to disaggregate the UC&C experience from the disparate underlying infrastructure components and letting this move at its own innovative pace [have] been important.” (General manager of global collaboration of a leading IT services enterprise)

- **Best-of-breed components can be integrated into solutions.** Solutions, based on agreed-upon industry norms and standard interfaces, provide end users with a greater degree of choice and ability to customize to their specific requirements and environments. In the early days of web services, IT departments chose an application server platform and were able to deploy any portal server or other component as long as it was based on standards. As the interfaces were further defined through standards like Web Services for Remote Portlets (WSRP) and JSR 168, standard portlets were easily integrated into the portal infrastructure. Through the adherence to standards, best-of-breed solutions provided greater choice and flexibility.

“Disaggregation is driven by innovation. A lot of the things people want today are created as components that have to plug in and further contribute to the breakdown of the [monolithic] stack.” (General manager of global collaboration of a leading IT services enterprise)

- **Interoperability and customization becomes “a la carte”.** Either within the portfolio of a single vendor or across vendor portfolios, end users can combine component capabilities to best serve their needs. For example, IT end users are increasingly complementing existing infrastructure and applications with new functionality delivered as a service. From the supply side, software-as-a-service (SaaS) vendors are able to embed partner capabilities into their offerings because of their adherence to web services standards — the interoperability with sales force automation applications with communications platforms and analytics engines. Likewise, SaaS vendors are able to offer add-on components to an existing business application deployed in-house, such as asset management modules that complement an existing enterprise resource planning (ERP) system.

The result of this componentization is that end users — just like in the automobile example above — are able to better customize their deployments. They are able to select the functionality they need and more easily integrate that with their existing infrastructure and applications.

Let’s take a look at how this works in the world of unified communications.

Unified Communications: Customizing Communications Through Componentization

Businesses have a range of requirements for communications services. These requirements are more easily met with recent developments in unified communications platforms and innovative component functionality.

Communications technologies have evolved to enable componentization. Functional building blocks such as messaging, presence, instant messaging, calendaring, contact lists, and video conferencing can be combined to create communications solutions to meet the requirements of diverse customers: both system owners and end users. These solutions are delivered as components consisting of hardware, middleware, applications;

Unified communications is a software solution that provides a choice of voice, video, email, instant messaging, video, or other modes of communication across a broad range of devices based on a combination of preference, policy, presence, and availability. The ability to route communication accordingly ultimately reduces the latency associated with human interactions, improves the efficiency of real-time synchronous communications, and enables faster, richer collaboration.

and multiple client devices integrated into a single communications infrastructure. — and delivered through a componentized value chain consisting of those who make the components and the products and those who provide the solutions, integration, implementation, and support.

“In UC[&C] the component is not a brick, it is a service. It’s more like a horse. The reason it is a useful component is because it does something. Think I’m not putting a brick in a wall. I’m going to attach my horse to the wagon and go to town.” (Technology industry architect at a multinational IT Services and infrastructure provider)

The integration of these services across the value chain facilitates the customization of communication and collaboration solutions. Employees, partners, and customers can use the modes of communication and devices of choice. Ultimately, this component integration can also facilitate the streamlining and acceleration of business processes and decision-making as functionality is embedded into business applications. For the system owners, the ability to integrate heterogeneous components facilitates management across a multivendor solution and network. Yet, it is only through the development and application of standard interfaces that these components can be integrated together and with other applications across an organization.

Defined Interfaces Emerge As Standards To Facilitate Componentization

This industry evolution toward componentization can occur only when agreed-upon definitions emerge to facilitate the integration of components — both within the product development itself and in the solution assembly and delivery. Defined interfaces facilitate an efficient specialization in the industry and enable innovation, as new components can more easily be developed to improve and extend functionality. The communications industry has proposed, adopted, trialed, and rejected many protocols and interfaces. SIP has emerged as the standard upon which unified communications solutions are built today.

SIP enables innovation by developers, communications services providers, and solutions integrators — and easily delivers this innovation to system owners and end users. By flexibly defining services, SIP facilitates integration and interoperability of a wide range of functionality across multiple devices, delivered across disparate networks. SIP emerged as an industry standard due to its flexibility, breadth, and ease of use. To put that in practical, real-world terms, SIP enables truly unified communications, including:

- **Interchangeability of multiple communication modes.** For example, with a single click, a user can choose to communicate with others via IM, email, telephony, or desktop video. “Follow me” communication routing also means that end users no longer need to know all of a correspondent’s contact details, as the communication is automatically routed to the device to which he is connected via the preferred communication application. SIP and the related simple object access protocol (SOAP) and SIMPLE (sales initiatives, marketing practices, and leadership excellence) are protocols that enable a single user interface to interchangeably access any of these communications modes.
- **Availability of capabilities across a wide range of devices.** End users can expect to be able to access communications applications from multiple devices — desk phones, mobile phones, laptops, even tablets when a portable user interface is created that accesses the SIP call control uniformly. Standards also enable

communications applications to access other useful corporate systems like the corporate global address book for identity and routing information or personal information managers for availability.

- **Integration with business applications.** End users can integrate communication components directly into enterprise applications when application program interfaces (APIs) are defined, well understood, and adhered to. These connections in turn speed workflow and facilitate decision-making. For example, instant messaging embedded into a sales force automation application enables instant pricing approvals and accelerates the close of a sale. A manufacturing firm might use out-of-tolerance readings from the telemetry on its manufacturing line to initiate an audio conference call with all stakeholders. For example, sensors at an ice cream production facility detect when the temperature on the production lines rises to 30 degrees, threatening to spoil the current batch, and immediately connect the refrigeration technicians, production schedulers, plant managers, and logistics analysts to plan how to accommodate a production slowdown while the refrigeration issue is repaired.
- **Federation of communication across the extended enterprise.** Functionality is not only unified within the enterprise, but is also extended outside the enterprise in a federated model that increases the value and ROI of a UC&C deployment. Incorporation of a supplier's corporate directory or presence information into the unified communications of an enterprise could speed time-to-market of joint solution development or eventual sales. This too can only be reliably adopted when multiple enterprises deploy communications systems that use the same agreed-upon standards. Historically, corporate security and personal privacy concerns have resulted in a reluctance to share presence, availability, and particularly identity information between organizations.

Extensive potential for innovation through agreed-upon definitions and for increased adoption emerge as the products and the market mature.

While communications applications have been around for years, it is precisely the value of this integration that brings true business value to unified communications. As one interviewee noted:

“The real value of unified communications is only 30% ‘I want to engage in in-person-type experiences remotely’ and 70% about speeding some business process.” (Technology strategist at a unified communications firm)

Unfortunately, Inhibitors To Unified Communications Adoption Persist

Despite the obvious value of unifying and integrating modes of communication into other business applications, persistent inhibitors prevent realization of the vision and value of unified communications:

- **Inter-vendor interoperability has been difficult to achieve.** Technology has evolved rapidly, resulting in an explosion of modes of communication and a proliferation of communication devices. Industry consortia and standards bodies struggle to keep up a constant flow of change and innovation. For example, the SIP standard defines only a few basic features, leaving the interfaces for new functionality incomplete. As a result, vendors create extensions that may not interoperate or may even cause failures. In other words, implementations differ. Moreover, some vendors purposely work outside of agreed-upon definitions to build differentiation for their solutions — exacerbating interoperability nuances and incompatibilities.

“At the end of the day implementations are hard to mix and match . . . even with agreed-on standards.” (Senior architect at a global software company)

- **IT organizational constraints have inhibited adoption.** Unified communications crosses domain boundaries within an IT department — touching the network, the infrastructure, and the applications. With many IT departments organized in silos, integration across functionality can be difficult, with teams responsible for voice and networks not wanting to cede control or collaborate with the IT infrastructure teams or the apps guys, like email and instant messaging.

“As we move from an appliance-based model to a software-based model, voice needs to become truly just another app of UC[&C] together with the others, with a standards-based interface. This is when we will really see adoption rate and integration start to pick up.” (Senior technology strategist at an international telecommunications enterprise)

- **Lack of IT department sophistication has inhibited integration of component functionality.** Similar to the organizational constraints, the lack of sophistication in some IT departments has also inhibited adoption. The perceived complexity of integrating components within heterogeneous IT architectures causes consternation within the department, which prefers to stick with status quo. As one IT architect observed, some parts of an IT department operate in a way that makes them amenable to componentization; they have a product-like approach to architecture and standard interfaces. However, there are others in a total spaghetti code of business where everything is held together by chewing gum and bailing wire. Those organizations tend to be less successful and, in some cases, less willing to attempt to consume something that is componentized. Even when the CIO might want to adopt unified communications, certain IT departments would argue that:

“We couldn’t physically figure out how to hook it into our environment. It’s not compatible with the stuff we run our business on. We built this big hairball, and it’s not easy for us to take somebody else’s thing and integrate it into our hairball.” (Head of communications for a global luxury goods firm)

“IT organizations can’t successfully and indiscriminately benefit equally from componentization. There are characteristics that make them more or less able to do that.” (Senior technology strategist at an international telecommunications enterprise)

- **Initial cost-benefit analysis didn’t justify adoption or IT investment into component integration.** While most IT decision makers understand the generic benefits of unified communications, they often find it difficult to build a business case and measure results within their own organization. Forrester’s Enterprise And SMB Networks And Telecommunications Survey, North America And Europe, Q1 2010 showed that 61% of IT buyer respondents believed they could make a good business case for unified communications, while 28% didn’t believe they were getting all the benefits they anticipated. Productivity improvements through unified communication within the enterprise are hard to measure, leading some buyers to worry that the benefit might not justify the costs — either in terms of acquisition or in the integration of component technologies.

“When instant messaging emerged, just texting or IMing back and forth didn’t provide that much value and was hard to prove an ROI. But if this is integrated to show where I am, what device I have, what I am doing, the best way to get hold of me, and how to get hold of other people, they start to pay attention. It’s not about sticking an IM on every desktop . . . it is about integrating it into what you do every day.” (Senior technology strategist at an international telecommunications enterprise)

Good News: Early Technology Adopters Are Achieving These Results Today

Companies anxious to improve their efficiency and effectiveness have successfully turned to modular deployments of unified communications. Successful connected, integrated, and federated enterprise deployments of modular unified communications are starting to deliver on their promise of improved communications capabilities across ecosystems.

- **The connected enterprise:** A financial services firm is using multiple modes of communication across devices in order to better connect executives and employees to the information and expertise they require. Additionally, integration of components from two major unified communications vendors, as well as integration with back-office applications, enabled more efficient and personalized customer service. Multichannel support provides outstanding customer service to support online services, and it is coupled with greater operational flexibility and efficiency; the call center achieved a 40% increase in customer contact volume with no increase in staff.
- **The integrated enterprise:** A consumer roadside assistance service firm has integrated communications into the workflow of business applications to improve and accelerate its business processes. The firm implemented multimedia functionality in its call center to deliver better customer experience. By using a single routing engine, it connects callers to its local branch office or engages a virtual service center when call volumes become high. This flow ensures speedy and personalized assistance (customers had the comfort and convenience of dialing a familiar local number for services and inquiries) and enabled the company to far exceed its goal of answering 90 percent of member calls in fewer than 30 seconds.

“Our starting point for this upgrade was to establish a dual MPLS/SIP network for our branches. This gives us an extremely high level of redundancy, because a call can go dynamically anywhere in our network without risk of interruption.” (CIO of one of the largest motor clubs in the US)

Another financial services firm needed to update its clients more regularly but also wanted to retain personal contact, so it had to increase efficiency. By integrating its CRM with a multiplatform communications system, traders could manage and then call a single client from one application on their preferred device or group relevant clients for prerecorded and personalized market updates. Through this integration, messages could also be recorded for regulatory compliance. The company experienced a 5% increase in client retention, and each trader saved around 1 hour per day through increased productivity.

- **The extended enterprise:** A not-for-profit health system has integrated five hospitals, 15 medical imaging centers, and more than 80 doctors' offices and urgent care facilities into a single federated communications system for faster and more relevant communications. Previously, despite being part of the same system, all these entities used their own separate platforms and integration systems. Using SIP trunking, they are able to use their existing network, but now through a single switching system across a consolidated network they have a single way to manage and integrate all their communications. Other benefits include delivering applications from a central source and ensuring complete availability of SIP phones through multiple servers. This flattening of the network has allowed cost savings and also enabled faster and more reliable communications, which helps save lives.

Figure 1
 Unified Communications Bring Business Value Through In Multiple Use Cases

Type of enterprise	Use Case	Benefits
Connected enterprise	Multiple modes of communication accessible via multiple devices (desktop, mobile phone, video) connect employees to information and expertise within the enterprise.	Improves efficiency of employee communication — and employee productivity — through dynamic selection of communication modes.
Integrated enterprise	Communication mechanisms are integrated into the workflow of business applications.	Improves and accelerates business processes and decision-making through as-needed communication.
Extended enterprise	Communications mechanisms are extended to external partners and customers — partner directories, presence information, or partners' business applications.	Facilitates inter-enterprise collaboration and decision-making and potentially reduces time-to-market through federated communication

Source: Forrester Research, Inc.

IT buyers and business unit managers want unified communications because it can deliver real business results. There are many examples of unified communications deployments saving money for IT departments as they optimize the use of resources, both human and physical, within their organizations. One buyer in the consumer products industry was praised by his manager for investing in unified communications and reducing the ongoing budget requirement for communications infrastructure and services in year one, then turning around to use those savings in year two to invest in delivering unique communications capabilities to business process owners. In today's rapidly evolving technology markets, buyers must preserve their future flexibility by deploying open standard solutions with well-defined and well-understood interface points. Investing in a closed, monolithic UC&C solution without common, industry-accepted protocols and interfaces can ultimately strand investment in UC&C solutions. When future requirements come to light, if integration with internal business processes or interconnection to partner or customer communications infrastructure is required and no open API exists, the original UC&C implementation may need to be significantly overhauled or even replaced. Buyers want the ability to select best-of-breed solutions to meet their business units' needs without locking into a single vendor's solutions road map.

Truly Unified Communications Spurs Adoption And Brings Business Value

The unified communications market continues to mature. As it does, common definitions of interfaces evolve and further enable component and cross-platform integration. Clearly, early adopters already benefit from unified communications. The evolution of the industry toward a standards-based componentization — with the experience of other industries as a guide — will further enable robust, interoperable unified communications.

Forrester anticipates that market maturity — and the resulting componentization — will continue through the emergence of:

- **Established and agreed-upon standards based on industry consensus.** Vendor consortia will agree to definitions, and standards bodies will adopt them. Firm leaders will commit to adhere to these standards/definitions, allowing innovative firms to develop industry- or functionality-specific capabilities, while market leaders build platforms that can accommodate and integrate these modules based on standard APIs and architectures.
- **A loosely coupled ecosystem of innovation around the platform.** The UC&C industry has already leveraged this loosely coupled model as venture capitalists and market leaders fund development of new capabilities, like fixed mobile convergence, by innovation-focused firms working beyond the standardized interfaces. Look for continued delivery of these capabilities around other areas, such as video- and communications-enabled business processes.
- **New deployment services with a new role for system integrators and value added resellers.** The potential for IT services around unified communications is significant and will drive system integrators to continue to develop their unified communications expertise. Similarly, those previously acting as resellers will evolve into value-added resellers and eventually into system integrators themselves as the pace of innovation accelerates in the UC&C market, demanding an ever-changing set of services to integrate new capabilities.
- **Network effect of a proliferation of end users on unified communications platforms.** Ultimately, Metcalf's Law (the value of a network grows exponentially with the number of connected endpoints) will dictate the value of innovation and demand greater innovation and interoperability. Buyers will demand, and vendors will be happy to provide, interoperable features, functions, and platforms across the ever-growing and ever-changing UC&C market.

UC&C SYSTEM OWNERS AND USERS CAN TRANSFORM THEIR BUSINESS

The UC&C market is adopting open, modular architectures to accelerate the delivery of these capabilities to system owners, creating value for buyers, users, and resellers as they adopt and deliver new solutions made possible by combining the best innovations available in the market today. As the market continues to modularize, expect to see:

- **Integration business peak and then level off.** Integrators' margins are built on the premise of "mystery" — system owners are willing to pay for services they cannot understand or deliver themselves. As standard interoperability becomes the norm, the amount of business dollars available to drive these integration tasks will shrink. The increasing use of hosted and unified communications-as-a-service offerings will reduce the need for some types of integration; however, complexity will grow around integrating on-site and "in the network" security and identity capabilities.
- **Innovations from smaller players accelerate.** When innovation-focused developers have a defined interface to existing business architectures, they can focus all their energy on their core competence — delivering new tools and capabilities. This focus will further accelerate the pace of innovation and increase addressable markets for those innovations. Substantial investments from market leaders and other sources of capital will flow to these innovative firms as the overall tech industry continues to recover over the next three years, and those investments will favor developers who address the widest markets via agreed-upon standards and interfaces.
- **Industry leaders commit to open interoperability — and adhere to their rhetoric.** Every major vendor in the UC&C space has stood in public and committed to open standards and interfaces, but the pace of innovation and the requirement to integrate to multiple disparate platforms and applications has led them to focus on perfecting internal interoperability first — making their components "work better together" so that highly reliable user experiences could be delivered. The time for "work better together" has passed, and this goal does not match the real-world experience of system owners and buyers who live in a grossly heterogeneous network environment; business units demand new capabilities, acquired companies bring in new platforms, and organizational politics prevent global architectural planning. These buyers will favor vendors who deliver interoperability because it is the only structure that makes sense in their environment.

Being able to select the right mode of communications for the task and users is the key to value. Process design, training, and driving user adoption will be the hardest part — changing human behaviors is more difficult than changing network architectures, after all. Implementing these new interoperable tools will facilitate new processes and improve business results faster by offering repeatable, reliable integrations that enable processes to operate more efficiently and effectively — this will offer the potential to impact the bottom line and top line as well. UC&C tools are a means to that end, not the end itself. System owners will have to partner with business process owners to drive improvements promised by open sets of interoperable capabilities.

Business buyers with process transformation needs will find it easier to integrate communications modules built to agreed-upon and defined interface definitions into workflow and process applications. Today's system owners should demand uniform adherence to accepted standards and interoperability between vendors of all types of communications and collaboration solutions. Vendors and integrators must help systems owners:

- **Integrate communications tasks to support collaboration.** System owners must make sure that users can "click to communicate" via any communications mode with any other party. Systems that have standardized on SIP and related standards and enable shared call control make this possible today.
- **Integrate communications tasks to support decision-making.** System owners must use disparate sources of information related to user identity and skills to enable communication or suggest appropriate users with whom to communicate. Leveraging social technologies to enable organic growth of communities of interest,

regardless of the unified communications infrastructure, is a more nascent capability in today's market.

- **Integrate communications tasks to support process redesign.** In order to drive process improvement and achieve quantifiable business results, system owners are being asked to integrate communication tasks into business workflows. Often, existing communication tasks can be initiated using standard API and process calls, leveraging standards like SOAP in web services architectures.

Appendix A: Methodology

In this study, Forrester interviewed nine global UC&C organizations and three companies from mature and componentized industries in Europe and North America to evaluate the value of componentization in the UC&C market. Survey participants included the following decision-makers: senior vice president; chief strategy and technology officer; head of communications; general manager of global collaboration; head of marketing, unified communications and collaboration; senior technology strategist; chief technologist at unified communication suite; senior technology strategist; university professor; and senior manager of strategy. Questions provided to the participants asked: What are the positives and negatives for going open? What business processes will benefit the most from open UC&C solutions? What do you use as a measure of success? The study began in October 2010 and was completed in February 2011.

Appendix B: Endnotes

¹ Steve Zwick and Moira Daly, “World Cars,” *Time International* (Canada Edition), February 22, 1999.

² Source: “Achieving High Performance in the Freight Forwarding and Logistics Industry,” Accenture, April 10, 2008 (<http://www.accenture.com/us-en/Pages/insight-high-performance-freight-forwarding-logistics-summary.aspx>).

Source: “Shipping Containers Dimension and Sizes,” Shipping Containers for Sale (<http://www.shippingcontainersforsale.org/shipping-containers-dimension-and-sizes/>).