

Making delivery of personalized, content-rich services possible with a next-generation architecture

White paper

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Industry dynamics

If you're a service provider competing in today's dynamic markets, your key to success includes three business-driven objectives:

- Offer subscriber-centric services that allow your subscribers to access communication and entertainment services at any time, from any place and from any device.
- Deliver services that are personal, context-aware and rich with content.
- Be highly adaptive, cost efficient and able to anticipate and meet the needs of your customers.

While these objectives are straightforward, each raises formidable challenges for your organization.

First, the convergence of telecommunications, Internet and media industries is finally starting to happen. Traditional industry paradigms are being discarded. Competition is developing on a massive scale. Traditional service providers (wireline and wireless) are now fighting for mind and wallet share, not only among themselves but also with application service providers (ASPs), Internet service providers (ISPs), cable entities, media properties (music, film) and other disruptive entrants, such as Google, AOL, Microsoft, eBay and Yahoo.

Second, regulators are fostering competition and increasing options to the public. In most cases, previously closed markets have been swung open and incumbent service providers find themselves being attacked from all sides. This Darwinian atmosphere ("survival of the fittest") is putting enormous pressure on prices associated with traditional main sources of revenue—voice and simple messaging. Without action, there is a real risk that service providers will become simple communications conduits, or "dumb pipes."

Third, technology is constantly increasing options and lowering cost. Perhaps the largest force is the emergence of the Internet Protocol (IP) as the means to connect applications to networks. The transition to IP creates enormous flexibility to deploy innovative services, and it provides the opportunity for considerable cost savings. This connectivity also provides a business control point as non-traditional telecommunication providers have no choice but to leverage such infrastructure to reach business and consumer users. This is a major reason why we're seeing industry consolidation and multi-access offerings. In other words, service providers are looking for all-encompassing control of the end user regardless of access medium. This added flexibility also creates another challenge. IP technology can allow end-user equipment to participate in the control of network applications, and this control can actually go directly between end points. This situation has never occurred before and actually adds complexity to the user equipment.

Fourth, there are continuing issues with the user experience. The world of communication services has traditionally been viewed as a series of disconnected services with non-integrated information and clear separation between communication and content usage. Users have fixed phones for calls from home; mobile phones for voice calls when they are away from home; broadband connections for surfing the Internet; television for watching broadcast information; radio for listening to news and sports programs; and MP3 players to access their favorite music. With different access methods requiring different user knowledge, and with services familiar in one environment rarely existing in others, the world is confusing and too disaggregated to increase the potential of the various offerings.



Fifth, today's service-provider environments are characterized by proprietary architectures, monolithic infrastructure, redundant functions, disparate data sources and limited interoperability among network assets. This all limits your ability to create a cost-effective infrastructure, deploy compelling, easy-to-use services and create an enriched, integrated user experience.

Finally, in some markets, household spending on communications services has remained at roughly 3 percent of the average household budget. This raises a valid question: Why should we expect that this will change with the implementation of some fancy new services?

A resilient, flexible architecture approach

Addressing these challenging industry dynamics requires an architectural approach that provides agility, cost effectiveness and fast deployment of new services. One path is the IP Multimedia Subsystem (IMS) which provides a vision and defines various means to help your service-provider organization overcome these challenges and meet your objectives. In essence, IMS is an open-standard, real-time services-oriented architecture (SOA) that enables the use of standard IT building blocks. IMS, although originally intended as a means to enable the mobile Internet, has now found industry-wide acceptance (wireless, wireline, broadband, cable) as a means to deliver:

- **Subscriber-centric, access-agnostic services**—In other words, regardless of access medium, there will be consistent access to the same set of services, content and user information.

- **Enhanced interpersonal communication experiences**—Leveraging quality of service (QoS) and real-time aspects of IMS will produce instant person-to-person and group communication services. We will also see enhanced interaction with various media forms (voice, data and video) as well as more effective integration of these media forms.
- **Significant cost efficiencies**—Savings are driven by the use of standards-based, modular, reusable components and the operational advantages of using standard IT technology versus traditional proprietary telecom infrastructure.
- **Broad and deep set of innovative money making services**—IMS brings service creation into the pervasive realm of IT tools. With this focus and separation of applications from the underlying network, the broader IT application vendor community is now capable of bringing applications to the telecommunications world. No longer is this an isolated world where only specialized application developers can play.
- **Improved business agility and velocity**—With its open, standards-based, horizontal architecture, IMS will provide the means to transform traditional vertically integrated business models and their hard-wired approach to more flexible, multiple-party partnerships where companies can focus on what they do best—e.g. customer management, network operations, service and content offerings.

Addressing key pressure points

At HP, we are focused on helping your organization take advantage of the industry paradigm shifts, address the aforementioned challenges and drive toward fulfilling key objectives—i.e. subscriber-centric services that are personal, content-rich and cost-effective to deliver and manage. We do this by helping you make a smooth transition from today's inflexible, vertical siloed, legacy environment to tomorrow's next-generation multimedia services and network infrastructure. This transition helps you achieve the promise of cost efficiency, flexibility and service innovation.

The transition to the next-generation infrastructure is an evolution, not a revolution. At HP, we strive to help you succeed in your transition by addressing key pressure points in this evolutionary process: consolidation, convergence and innovation.

Consolidation

Consolidation is required to both reduce the cost of operating networks (CAPEX and OPEX) and make it easier to introduce new services (IMS-based or not). But it is clearly easier and less costly to migrate to the next-generation network infrastructure with fewer legacy systems. If you do not consolidate, then the operational challenges you currently face (e.g. data management, change management, optimizing resources, rolling out new services) will only get worse as you pursue the transition to next-generation infrastructure and related services.

Through consolidation (e.g. interactive voice response systems, home location registers, billing platforms, messaging systems, customer information databases), you can reduce the number of network elements, increase scalability and enable common component re-use.

Convergence

Your organization continually strives to enhance your value-added services focus, enable subscriber-centric service options and maintain control over your business. You can enable these gains by implementing a converged IMS-ready service delivery architecture. This architecture is based on services-oriented architecture principles. It enables the separation of the services domain, where services are created, from the underlying network infrastructure. New services can be executed and managed without any dependency on the network. Thus with this approach, any competent IT developer, rather than telecom protocol specialist, can build and test network-agnostic services—and your business can quickly start generating revenue.

Innovation

With a flexible, modular, cost-effective infrastructure in place, you can differentiate your offerings from competitors' offerings by creating revenue-generating multimedia services that were previously cost-prohibitive or simply not possible. This allows you to significantly ramp up your business flexibility and velocity—a bankable advantage in today's hyper-competitive environment.

It's important to note that this transitional process is not the same for all service providers. Some service providers will drive these activities in a serial fashion while many others will drive these either in parallel or in an iterative manner. The key is to identify the approach that is right for your organization.

HP Service Delivery Platform

The HP Service Delivery Platform (SDP) offers a strategic blueprint for helping you successfully develop, provision and deploy standards-based end-user services and migrate from today's legacy networks to the next-generation architecture. The SDP does this by focusing on the key areas that you must address in making this transition: service creation and composition, service delivery infrastructure, service management, transport, signaling and end-user devices.

The SDP allows your organization to deliver services (web and real-time) across multiple network types (fixed, mobile and broadband) and generations (2G/2.5G/3G/IMS). It essentially bridges the networks of today and tomorrow by evolving the existing network model to a services-oriented architecture. Also, the SDP reinforces the architectural philosophy behind IMS, in which the various architectural layers are decoupled (application, service delivery, session control, transport) and allowed to evolve independently. This approach simplifies the evolution to IMS, reduces costs and provides the means to implement a better infrastructure.

The HP Service Delivery Platform has been designed with the flexibility to address specific customer requirements—and avoid a one-size-fits-all approach. We use the SDP blueprint to design a solution tailored to your specific requirements. If you are looking for new revenue-generating opportunities based on the web services concept, the HP SDP can meet that demand. If you are looking to implement real-time communication services, the HP SDP can support that requirement as well. And if you are looking to implement a combination of web services and network services—coupled with your existing legacy circuit switched offerings—we have the software (HP OpenCall and HP business technology optimization software), integration services (HP Consulting and Integration) and partner assets (application vendors) to address these challenges as well.

HP OpenCall software

The HP OpenCall product portfolio powers the real-time service delivery infrastructure of the SDP. We do this by providing open, standards-based service platforms and enablers. These include:

- **Home Location Register**—the core wireless network database responsible for user and service data, mobility management and authentication
- **Home Subscriber Server**—the HLR in the IMS world, which holds user-related information (identity, security, profile, location) and provides authentication
- **XML Document Management Server**—a network element that provides centralized group data repository, allowing access and manipulation of user-defined data (contact lists, group lists and access lists)
- **Media Platform/Media Resource Function**—a voice and video services platform that supports development of multimedia service offerings
- **Service Access Control**—a platform that enables real-time charging control of multimedia sessions
- **Signaling (SS7, Sigtran, SIP, Diameter)**—platforms and protocols that connect applications to your legacy and next-generation networks

These products support both legacy and next-generation IMS environments. They bring you the power and flexibility of IT to telecom without sacrificing stringent carrier grade requirements.

Application partners, HP Consulting and Integration, and third-party system integrators leverage this low-latency HP OpenCall application enabling infrastructure to help your organization:

- Deploy innovative, real-time multimedia services (e.g. video messaging, voice conferencing, video portals, voice and video call centers, music sharing, ring-back tones, instant messaging) that focus on a user's desire to communicate and exchange content with like-minded people (i.e. consumer and business communities)
- Effectively manage subscribers (e.g. user profile and service data, identity management, security)
- Implement innovative billing systems (e.g. pre-paid, converged pre- and post-paid charging)
- Create robust connectivity infrastructure (e.g. signaling solutions to scale today's 2/2.5G networks and IP-based products to enable next-generation multimedia applications)

Services that follow the web services paradigm can also access the HP OpenCall powered real-time service delivery infrastructure of the SDP. These network-level capabilities are exposed via XML and web services interfaces (e.g. SOAP/XML, ParlayX) and provide the means to create innovative services that blend the benefits of content-oriented applications delivered by third-party/external entities with the high throughput of trusted, network level service enablers (e.g. location, presence, conferencing, messaging).

HP business technology optimization software

Creating and delivering services is only half of the equation. As we pointed out earlier, the user experience with new services will be just as essential to your success, allowing for market adoption and greater revenues. Factors such as quick activation, service availability, easy and understandable billing, and call center support will all contribute to the success of the service. In addition, the user experience reflects all aspects of your value chain, starting at the user's own device or handset, passing via your network and servers, and potentially involving third-party content providers.

Understanding your customer's service experience is therefore complex since so many factors must be considered. For example, service availability will combine handset capability and reliability, radio access network capacity and coverage, network infrastructure availability and performance, and potentially third-party application availability and performance. To give you a better view of the customer experience in this complex environment, HP provides tools to help you monitor the true end-to-end service. These tools must source information from a huge range of inputs, including networks, value-added servers, probes, devices, mediation systems, business process metrics and call centers. We are meeting this need today with the HP Integrated Service Management (ISM) blueprint, which covers fulfillment, assurance and usage activities. The ISM blueprint is powered by HP business technology optimization (BTO) software, a broad suite of management products spanning from telecom-specific tools to broader IT capabilities.

For effective service creation and deployment, fulfillment, assurance and usage are all critical. Services and identities for subscribers must be provisioned and configured (service fulfillment), components of the SDP must be monitored in real time (service assurance) and accurate usage records must be maintained for billing and business intelligence purposes (service usage). HP BTO software covers these broad requirements with components such as HP Service Quality Manager, HP Service Activator, HP SOA Center, HP Identity Management, HP TeMIP and HP Operations Manager software.

HP Services Marketplace and HP OpenCall Experience Centers

Ultimately, the transition to a next-generation architecture is all about deploying revenue-generating services in a cost-effective manner. In support of this goal, we have implemented a comprehensive program, the HP Services Marketplace. Designed around the HP Service Delivery Platform, the program provides your organization with essential services, consulting and technology, including expertise and tools for use throughout the services development lifecycle (Explore, Test, Deploy and Manage). Through the HP Services Marketplace, our communication industry experts work with you to examine the broader variety of applications and subscriber experiences available in our partner ecosystem. This helps you pick the offerings that can best help increase revenue and improve your bottom line—today.

You will find HP OpenCall-based services throughout the Services Marketplace. As members of the HP OpenCall partner program, independent software vendors (ISVs) can inject their applications into the Services Marketplace Explore portal and create improved visibility for our combined solution offerings.

And finally, the HP OpenCall Experience Centers have been created to showcase what you can offer customers today and what's in store for the future—based on the real-time HP OpenCall service platforms and enablers and on partner applications. When you visit one of our centers, you will get an up-close and personal view of ready-to-deploy services (with built-in flexibility to evolve to IMS) as well as tomorrow's innovative solutions.

Key takeaways

By working with HP on your transition to future networks and services, your organization is in position to realize:

- **Revenue-generating services today**—addressing near-term needs to increase average revenue per user (ARPU)
- **Investment protection**—via a path to service and information convergence, improved asset utilization and operational consistency
- **An attractive return on investment**—platform leverage across networks and applications, investments aligned with business needs
- **A path to innovation**—open, standards-based infrastructure supporting legacy and next-generation environments; access to a broad and deep application portfolio; and reduced time, cost and risk to new service and feature introduction
- **The ability to enhance the user experience**—a means to adapt quickly to specific customer segment needs, deliver compelling, simple-to-use, sticky services, and consequently increase customer loyalty, drive traffic up and reduce churn

Why HP?

At HP, we not only help you address the standards and pressure points during your transition, we help you leverage the broad vision of next-generation architectures. We apply our thought leadership to provide differentiated solutions that solve some of your most pressing challenges (e.g. effectively deploy multimedia services, manage subscriber data, implement flexible charging solutions, scale signaling infrastructure to accommodate the next billion subscribers and address the move to IP).

When you work with HP, you gain access to industry expertise, differentiating intellectual property (HP OpenCall and HP BTO software), IT and communications know-how, a robust partner portfolio, and an extensive geographical footprint. Drawing on these resources, we strive to be the top provider of innovative communication solutions that help you capture profitable growth in an increasingly dynamic and competitive environment.



To learn more, visit www.hp.com/go/OpenCall

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