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Convergence, Costs, and Customers (More of Them)

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Over the next several years, service providers will be providing customers with much more for much less, at least if revenue is calculated on a per-bit basis. Service providers are rapidly moving to all-IP networks, and IP traffic is expected to explode. Cisco Systems predicts that global IP traffic will exceed 667 exabytes by 2013, due largely to the growing popularity of bandwidth-consuming video, which is projected to rise to 90 percent of IP traffic (Cisco Global IP Traffic Forecast 2006-2011). Yet competitive pressures have driven providers to flat-rate billing, so gamers and the like have every incentive to use as much bandwidth as they want, since they won't be charged extra. The result: per-bit revenue is bound to decrease.

How can a service provider do so much for so little and still make a substantial profit? Two strategies are obvious, although each is easier said than done: first, you must lower the cost and effort of delivering the bits; and second, you must attract and maintain more customers who supply revenue. In today's low-return-per-bit environment, market share is king. This brings us to one of the hot topics in modern telecommunications: the value of a converged network infrastructure.



Done Right, Convergence Cuts Costs

A "converged infrastructure" means an infrastructure that enables a single core network to deliver all voice, video, and data services regardless of access method, whether it be high-speed broadband or high-speed mobile—e.g. 3G, DSL, cable, WiMAX[™], LTE, etc. Clearly, a carrier can save significantly by consolidating networks, as long as the consolidated network is well built and well

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managed. Consolidation enables savings on capital expenditures, at least in the long term, because you only need to buy equipment for one network. As for management: although convergence makes a network intrinsically more complex because all IP services go over a single infrastructure, you only have to worry about *one* infrastructure, hire and train only one network management team, and purchase only the Operational Support Systems (OSS) built for monitoring and troubleshooting that type of network. A consolidated network infrastructure enables the simplification of monitoring and management, allows for easier and far more cost-effective and efficient network management, end-to-end service assurance and a simpler, more reliable way to deliver high-quality subscriber experience.



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Done Right, Convergence Wins Customers

The savings on CAPEX and OPEX mentioned above suggests two obvious ways that convergence can help a service provider keep and attract customers: you can pass some of those savings along in the form of lower prices, and/or you can use the money to invest in new services. Customers love both.

Yet convergence offers service providers much more than savings; it enables them to make services accessible from anywhere and also makes them more compelling. Since a converged network is agnostic to access methods, customers can access the services using any device—or at least any device that is physically equipped to receive the service (e.g. there can be no video conferences while driving). Customers love this too. Convergence also allows you to *blend* services in a way that improves customer experience and benefits the consumer. A simple example would be to place Caller ID on the television. This service integration is uncomplicated, and it makes things easier for customers (especially couch potatoes). Or you might blend video instant messaging with TV so your customer can communicate with friends while watching a program.

More generally, convergence benefits consumers by enabling carriers to shift their focus from technology to the customers themselves. When you have to deploy and manage multiple infrastructures for multiple access methods—e.g. cable, 3G mobile, LTE, DSL—your focus tends to be on keeping all of those infrastructures up and running, modernizing and scaling them for growing traffic loads and new, in-demand services. Moreover, you must design your services around those separate infrastructures, which requires multiple forms of technical expertise and effort. There are just a lot more technology issues to which you must attend, and your efforts are largely technology driven. However, with a converged infrastructure, once you have it in place and managed by effective monitoring and troubleshooting tools, you can turn your attention to your customers. That is, you can focus on developing a set of services that the customer finds innovative, compelling, and

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useful—services your competitors may not offer. At this point, a service provider can become far more customer-oriented and dedicated, with an emphasis on multiple services that draw more customers. Some providers who have implemented a converged infrastructure have become very passionate about this mission, and now see themselves far more as customer- and service-driven companies than technology companies. In fact, several providers have turned over the management of their networks to network equipment manufacturers so that they can concentrate on winning market share through a rich set of service offerings.

But How Do You "Do It Right?"

From a competitive standpoint, "doing it right" includes doing it fast and getting the technology and service delivery right *from the start.* Speed is important because once a competitor has grabbed a significant amount of market share, it's hard—though not impossible—to dislodge it. This is particularly true in telecommunications because most busy consumers do not have time to examine and compare complicated service offerings, contracts, and so on. Once they've signed on, they are disinclined to repeat the hassle, unless the service quality is low or the service offerings are limited. Yet, this points to why you must get your network technology and service delivery right from the very beginning. Customers will churn if services are unreliable or just don't work, if network outages occur frequently, if set-up times are slow, or if the quality of service transmission is poor.

One issue that often arises is whether the need to "get it right" is a reason to implement converged services based on IMS (IP Multimedia Subsystem), which is a service delivery platform agnostic to access methods. Whether or not IMS will dominate the industry is still an open question, but here are some considerations. One advantage of IMS bears on the competitive need for speed in deployment. IMS *already exists* as a *structured and standardized* way for designing and delivering blended multi-play services. If you use it, then every time you build a service for a particular device, you need not start from scratch with different protocols, a different authorization method, or a different service API. IMS provides a flexible, inexpensive, and streamlined way of introducing services anytime, anywhere. IMS does add some complexity at the network implementation level, but it simplifies and accelerates the development and delivery of services. Some carriers, however, might consider IMS too technically complicated or inappropriate for their needs, and may try to customize it for their specific purposes or wait for a new platform to emerge in the industry. But again, these approaches take time and might delay the introduction of new services, which, in turn, may diminish your ability to gain early market share. This is a calculation that each provider must make based on its specific marketplace and the strength of the competition.

IMS or not, one of the best ways to get things right from the start is to select the most effective, efficient, and easy-to-use development, deployment, and multi-play service monitoring and troubleshooting tools. Here are some capabilities that the best tools will provide:

End-to-end service monitoring—Some test vendors offer element and node-based tools that generate a lot of fairly isolated data, but do not provide a wide-angle view that looks at a service from one end to the other. The most effective solutions pull together information from the core, the access networks, the edge, and all service components, even when the environments of each are not based on the same service delivery platforms and technologies. By pooling and correlating this disparate data, an end-to-end view emerges. The solution should also have quick and easy-to-use drill down capabilities for troubleshooting.

Media and Signaling—Tools should correlate the user plane with the signaling plane to enable a complete analysis of all aspects of a service.

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KPIs—It is crucial to have tools that generate key performance indicators applicable for each specific service, because relevant KPIs can differ from one service to the next. KPIs allow you set appropriate baselines and thresholds and receive alarms when those thresholds are crossed.

Interconnect monitoring—Any converged infrastructure will succeed only if management tools can monitor, analyze, and troubleshoot information that passes *between* carriers at interconnects. This information can be used to verify SLAs as well as for billing purposes. These are the kind of capabilities that will enable your network to run smoothly and almost transparently, requiring far less maintenance, and truly liberating you to focus on customers rather than technology. The payoff is more satisfied customers generating far greater revenues.

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