Pipeline
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www.pipelinepub.com Volume 4, Issue 10

The Next Generation: How Does IMS Affect OSS?

by Cassandra Millhouse

The Significance of IMS

The IP Multimedia Subsystem, IMS, is an architectural framework and a standard that's gaining in popularity. According to *OSS Observer*, up to 150 service providers are currently engaged in IMS projects. IMS offers a standards-based approach that promises to truly allow the economical construction and delivery of new services from "lego-block" components over *any* technology to *any* device. The need to support regular and ongoing development, delivery and assurance of high volumes of new services – and to do it conveniently, economically, creatively and commercially – is critical and will remain so in the foreseeable future.

How Does IMS Affect Operations?

It has been suggested that IMS limits the need for OSS because many operational aspects of service management will be taken care of automatically in the network. However, as more service providers engage in IMS trials and start to go to market with IMS-based services, evidence is proving the opposite. The particular requirements of IMS actually make OSS more necessary, not less, to the delivery of IMS-based services.

In particular, OSS needs to be fully automated—able to handle those issues through interrelated planning, fulfillment and assurance functions. If it isn't, it is simply not possible to make money from IMS implementation. According to a 2007 report from Frost & Sullivan's Stratecast practice, "IMS success cannot be achieved until a solid information management strategy and OSS/BSS alignment have been put into place."

IMS vs. Existing Protocols

From an operations perspective, there are three key differences between IMS and existing protocols: abstraction, distribution and complexity.

IMS abstracts services from the underlying network technology. Potentially, this gives service providers greater flexibility to take a wider range of slightly differentiated services to market – since change can be made to services, without

corresponding change to the network. This also allows them to appeal more directly to more tightly defined market segments in order to increase their market shares. Flexibility comes from the ability to construct different options in a "plug and play" service-style environment. However, this also means that demand is less easily forecast by traditional means. In particular, managing peaks in activity becomes less predictable from outside. Therefore, the ability to manage quality of service (QoS) must be inherent in operations processes, rather than a separate, discrete activity.

Under IMS, it's possible for customers to order and receive activated services directly, providing near-instant gratification. IMS makes it easier for customers to order a service directly to the device where the service will be consumed, which helps promote greater consumption of services. (Why not order another video when it's so easy and so immediate?) However, ease of use for the consumer, and for product managers who dream up new services, corresponds to rising complexity in the network and in operations. Management processes need to be built-in to functional processes and also automated, so the network can handle anything that's thrown at it from nearly any direction—and do it on the fly. In particular, since new IMS-based capabilities are software-based, version control becomes an issue. A combinatorial explosion of versions needs to interoperate, so services can be managed according to multiple policies and delivered to multiple devices. This situation will also continue to grow over time.

Policy and Device Management

Within the next-generation network architecture, operators must be able to control the services and applications they provide, as well as the underlying network that supports these services. Policy management is a fundamental capability that allows operators to manage the resources within their IP network and provides hard performance guarantees for services such as VoIP and IPTV. Policy management needs to be supported by BSS/OSS, so policies can be created and managed throughout their lifecycle—from service creations to service fulfillment and activation.

The delivery of next-generation services makes the ability to manage an end-user device increasingly important. As the number and sophistication of these devices grows, it becomes necessary to have a management solution integrated within OSS. As the industry has seen, the protocols to support device management are not consistent between definitions of next-generation architectures. Even within the same industry, there may be regional variations.

Service enablement is more productive when the inventory of devices, the non-application software (e.g., the operating system) and the applications it can support are all in one place. For example, service activation can become less prone to failure if end-device capabilities are recognized earlier in the service fulfillment lifecycle.

IMS Makes Tighter Cohesion within OSS Mandatory

With IMS, the interrelationship between operational processes is no longer merely desirable, but necessary. This is where it has its greatest impact on OSS.

In the service fulfillment process, for example, each service and service instance must be associated with a particular policy at the point of fulfillment. There is an implicit relationship between policy and services, and OSS is required to make that link explicit at the time of provisioning.

This also has implications for policy design. For an IP network, policy can be associated with two points of QoS on one service (A end and Z end), but cannot be assigned over the entire network. In the short term, the realistic option is to manage capacity over access networks, and over-provision the core. However, this leads to higher capital expenditure costs than necessary, which will be unacceptable in the face of low- and decreasing-margin services.

Ultimately, OSS needs to take an "upstream" role to make sure the right type of IP network is available at the point of provision, compatible with the service being ordered. Planning within operations has to take on a bigger role and greater responsibility and, critically, network plan and design must take place commensurately with service design.

Going a step further in the provisioning process, the diversity of devices such as handsets, set top boxes and different varieties mean that there must be a linkage between the capability of a device (e.g., screen resolution) and the QoS experience. OSS needs to manage this linkage. What's more, it needs to do so where a device can run multiple policies and services concurrently.

For instance, a service such as a video download might have a policy of commandeering all bandwidth for its duration. If a subscriber receives a phone call in the middle of a download, what should policy management do? Some would argue the incoming call, on finding "no bandwidth available," should prompt the subscriber to buy more bandwidth to support the phone call, so the subscriber can take the call and continue with the download concurrently, albeit at extra cost. To be clear, this is precisely the situation that occurs when policies for different services execute in isolation.

Subscribers are unlikely to agree that this approach makes sense. In fact, providers will likely find they need to manage dynamic policies so compatibility between multiple services can be maintained both inside and outside of the service. OSS can play a role in managing compatibility of policies, enabling interoperability of services at the subscriber, service instance and device level.

Conclusion

IMS brings exciting new capabilities to service providers, enabling them to create innovative new services that are easy for customers to order and run. Immediacy and ease of use for customers, however, comes at the price of greater complexity in managing the network. Therefore, the ability of operations to support processes such as planning, fulfillment and assurance becomes more important, rather than less. Operations must be more efficient and automated to meet both cost and volume realities for new services under IMS. Operations must meet new requirements, particularly to support service management, policy management and

device management. More than anything else, IMS means that operations must be seamlessly interrelated. For existing networks, the old silo approach might be less than optimal. In IMS, it's simply unworkable.

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