In the new telecom era of industry convergence, internet-driven business models and the relentless drive for efficiency, building an OSS piece by piece no longer makes sense. A panoptic approach is required which takes into account the views of multiple stakeholders, the true 'lifecycles' of resources and services, and the power of currently available standards and SOA principles, writes Norman Kincl, in this extract from a full length HP White Paper

Rethinking OSS for the new telecom era

This inclusive approach to OSS allows service providers to achieve the cost, agility and functional benefits promised by Next Generation Operations Support Systems (NGOSS) with current technologies, products and services.

Achieving NGOSS transformation involves automating manual processes, aligning organizations and architecture, and deploying and integrating key software tools using NGOSS and ITIL (IT Infrastructure Library).

This transformation can be broken down into a series of steps which include: understanding the business case for NGOSS, developing architectural views that define the roles of each system in each business process, designing for the lifecycles of services and resources, identifying the functions of each system and an approach for successful deployment of such systems.

Let's look more closely at how these steps can be taken in an OSS deployment.

OSS can be loosely defined as the set of processes and systems that deal with the revenue-generating infrastructure of a service provider.

Traditionally, the OSS has solely addressed the telecom network. But, as service providers move to next-generation networks and increasingly rely on complex, value-added services supplied by traditional IT equipment to support their business case, OSS has had to expand its scope beyond the network and address the IT systems that are "in the call path".

The business case

As with any other business tool or entity, OSS needs to justify its existence by the support it provides to the business strategy. While this may seem obvious, the reality is that discussions often start at the technology level and result in attempts to drive the business processes via the technology itself.

Often the outcome is that, while the system implemented may be a technological wonder, it is a business failure, or at best a mediocre success, since it does not address key business drivers.

The changing telecoms landscape means that it is no longer viable to maintain traditional approaches to OSS implementations. The siloed approach of services supported in vertical stacks, in isolation from other offerings and systems, limits the potential for cost savings and poses significant barriers to converged service offerings such as triple or quad play or fixed-mobile convergence.

Convergence is happening across business, customer, service, infrastructure and other dimensions, each of which has implications to the service provider business and how the OSS needs to support these changes.

As a consequence, the worlds of telecom and traditional IT are also converging in the back office. Much work has been done by standards bodies such as the TeleManagement Forum with regard to integrating eTOM and ITIL frameworks.

An architectural methodology

HP, which has pioneered both development and implementation of the TM Forum's NGOSS standard, has extensive OSS architecture experience.

To ensure the resultant system meets its business goals, HP uses a systems architecture methodology that drives the technology from the business requirements. This is accomplished by taking an approach that drives distinct architectural views.

Conceptually, these views are similar to the different types of drawings and models that a traditional architect may need to develop when designing a building.

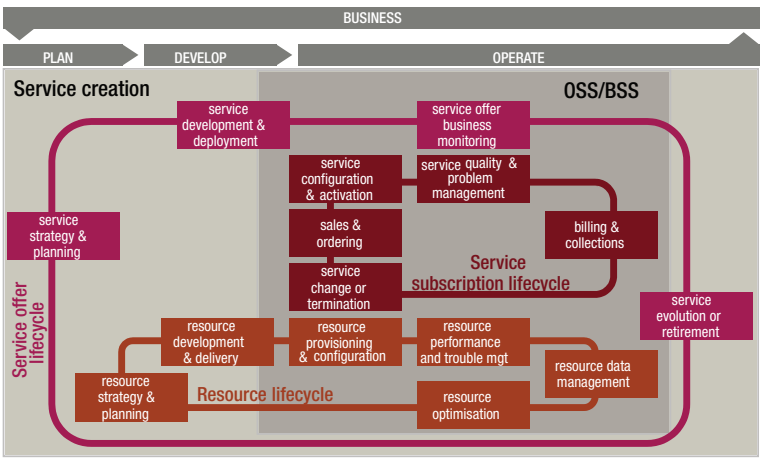
The IEEE has formalised the concept of architectural descriptions, including the need for different architectural views, in standard ANSI/IEEE 1471-2000, Recommended Practice for Architecture Description of Software-Intensive Systems.

Within HP's methodology, the business, functional, technical and implementation views, or the "why", "what", "how" and "with what" questions of project are addressed.

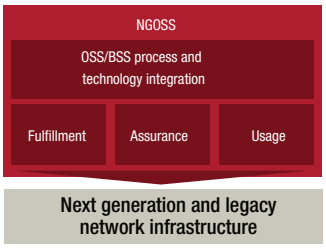
Lifecycles in an agile industry

OSS integration has traditionally been viewed along OSS process lines: order to activation (fulfilment), fault to resolution (part of assurance) and so on. But given the new service arena will be comprised of a

Service and resource lifecycles



NGOSS functional areas



vastly increased number of services, some of which may have short lives, OSS needs to also map itself to the lifecycles of the service provider's infrastructure and services.

The lifecycles HP has defined cover the full plan, deploy and operate lifecycles of services and resources.

Among these lifecycles is the resource lifecycle, which addresses the management of the revenue-generating networks and systems. It focuses on domain and element management, including network management, for the network components, and IT management, for the systems and applications that are part of the revenue-generating infrastructure such as value added service applications and service delivery platforms.

Another critical lifecycle that OSS must have a view of is the service subscription lifecycle. The service subscription lifecycle must be traversed once for each service being used by a particular customer.

This lifecycle — see lifecycles diagram — is often driven by the account manager, customer service representative or the customers themselves. The primary systems involved with this lifecycle are OSS and BSS.

The service offer lifecycle covers the activities involved in management of bringing a new service to market: OSS and BSS readiness, monitoring its business performance, and evolving or withdrawing the service. The service offer lifecycle is not tied to any particular customer but provides the business view of a service offer or product.

It is typically driven by a line-of-business manager and mostly involves business planning, SDP and engineering systems.

There are other lifecycles that occur within a business and within a service provider however, these three are the most closely aligned to OSS.

Critical OSS functions

The functions of a successful, complete OSS solution can be grouped into three main areas, all of which are addressed by HP - integration, fulfillment and assurance. HP considers usage functions part of the HP BSS solution. OSS/BSS integration functions include business processes and policy. These provide consistency to all the functional areas through a structured definition of key business details that affect the OSS and BSS solutions. An integration technology layer follows. This provides for a unified, federated store of the cross-functional OSS/BSS data that includes network inventory, service inventories, a product catalogue and data management. Solutions to address SOA communications and orchestration are also required. These include middleware to enable the communication, standardized interfaces, process and policy engines to support automation, and tools to provide governance.

When assessing the functionality that needs to be supplied to address the fulfilment area, the service lifecycles that characterise the business process need to be taken into account — see functional areas diagram.

Within the service subscription lifecycle there are three main functional areas:

- order management;
- provisioning/engineering; and
- service activation.

Order management ensures that, once the order is determined to be feasible, complete and consistent, processing can start and order management will decompose the order into the constituent services, provisioning and activating them using the provisioning and activation functions.

Provisioning/engineering has the task of verifying the availability, suitability and reservation of resources prior to changing their state.

Finally, assurance functionality includes domain management, incident and problem management, fault management, performance management and testing and diagnostics.

Domain management focuses on ensuring a particular domain is performing as expected. Domains are typically structured by the technology being managed, but may also be separated organisationally or by regulatory requirements.

Incident and problem management supports the resolution of any incidents and problems. ITIL terminology can be used here rather than a more traditional telecom terminology since it brings additional clarity.

Performance management involves the collection and analysis of performance data. The data can be collected from performance counters in the equipment or in element managers. It may also be collected from instrumentation added in the form of probes.

It is also important to be able to run testing and diagnostics, both to get further information that can be used to better understand faults or poor performance, as well as to verify that all the components respond as they should.

In this extract we hope to illustrate some of the new thinking that HP is bringing to bear on OSS architectural questions. In the full white paper these concepts are further elaborated while the "how to build an OSS" section covers applying them alongside service oriented architecture, governance, and an overall process of building NGOSS based on the steps of "define, design, develop, deploy, operate" is elaborated.

NGOSS now

HP is taking a total approach to OSS transformation by addressing the steps required to build NGOSS and supplying the software, hardware and services needed as part of its full NGOSS solution.

The solution includes reference NGOSS architecture and integration modules, built-in management capabilities for a multi-service and multi-vendor environment as well as pre-packaged solution accelerators to address carrier initiatives such as IP/MPLS, IPTV, mobile, VoIP and IMS/SDP.

This offering is backed by the company's Solution Consulting Services which offers modular, solution-focused services that address the multiple aspects of OSS transformation.

With hundreds of implementations around the world in OSS, HP has proven experience with skilled solution consulting and delivery teams backing a broad solutions portfolio. ■

Please visit www.hp.com/go/ngoss for more information or to sign up to receive a full copy of this whitepaper. It will be distributed May 20 2008.

See HP NGOSS at TeleManagement World, Nice, May 18-22 2008; or Billing and OSS World, Chicago, April 29-May 1 2008.