

Next Generation Network OSS/BSS Markets and Forecast

[Sample/Excerpts ONLY]

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Next Generation Networks (NGN) promises a high quality end-user experience. Telecommunications service providers expect the NGN framework to provide them with tools that would ensure customer loyalty. However, the path towards achieving the ideal NGN is fraught with formidable challenges. The most critical challenge confronting operators is optimizing their OSS and BSS platforms, systems, and processes.



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Executive Summary (excerpt)

The OSS/BSS vendor environment is extremely competitive with close to 400 vendors, mostly specialized in niches and having a strong services arm. Vendor categories include Comprehensive Solution Providing Pure OSS/BSS Vendors, Comprehensive Solution Providing Composite Vendors, Skill-set Extension Solution Providers and Core Strength Concentrators – BSS and OSS. The vendor landscape is characterized by extensive M&A activity.

Mind Commerce forecasts that the consolidated OSS and BSS revenues will grow from USD 12823.2 million in 2006 to[See Full Report]

Chapter 1: Introduction

This section shall summarize the findings of the report mentioning salient features about growth paths of OSS and BSS worldwide markets.

As NGN by itself is a topic of intense activity for the concerned stakeholders, this report shall stick to the impact of NGN on prevailing Operation Support Systems (OSS) and Business Support Systems (BSS) deployed by various operators.

OSS performs the management of telecommunication networks with specific focus on engineering, design, planning, performance and maintenance functions.

BSS deals with the integration of customer usage data with the organizational processes of the telecom operators.

To set the ground, this section will set the perspective in place by introducing NGN while describing in detail how it differs from traditional Public Switched Telephone Networks (PSTN) and Public Switched Data Networks (PSDN) on a holistic basis. It shall trace the history of NGN initiative and explain the role of various industry and standard bodies in its development. It shall enlist the regulatory, technical and business drivers for NGN and also the issues confronting it.

What is NGN?

NGN stands for Next Generation Networks. The NGN initiative, driven by ITU, promises convergence of diverse connecting protocols and applications to provide ubiquitous voice, data and video services.

NGN has the following salient features

- § Packet based switching and networking
- § Separation of transport layer from the services and application layer

NGN will offer the following services

- § Person-to-person communication services
- § Person-to-person messaging services
- § Content on demand services

[See full report for more information]

Chapter 2: Challenges for OSS and BSS in NGN

This section begins with a block level description of OSS and BSS functionalities in the traditional environment. This is followed by a description of the challenges confronted by OSS and BSS during transition to the NGN environment. Finally, the concept of NGOSS is introduced, as it is central to the way in which the OSSS/BSS vendor community is implementing their product roll-out.

Figure 2-1 depicts the position of OSS and BSS functions in a telecom operator environment.

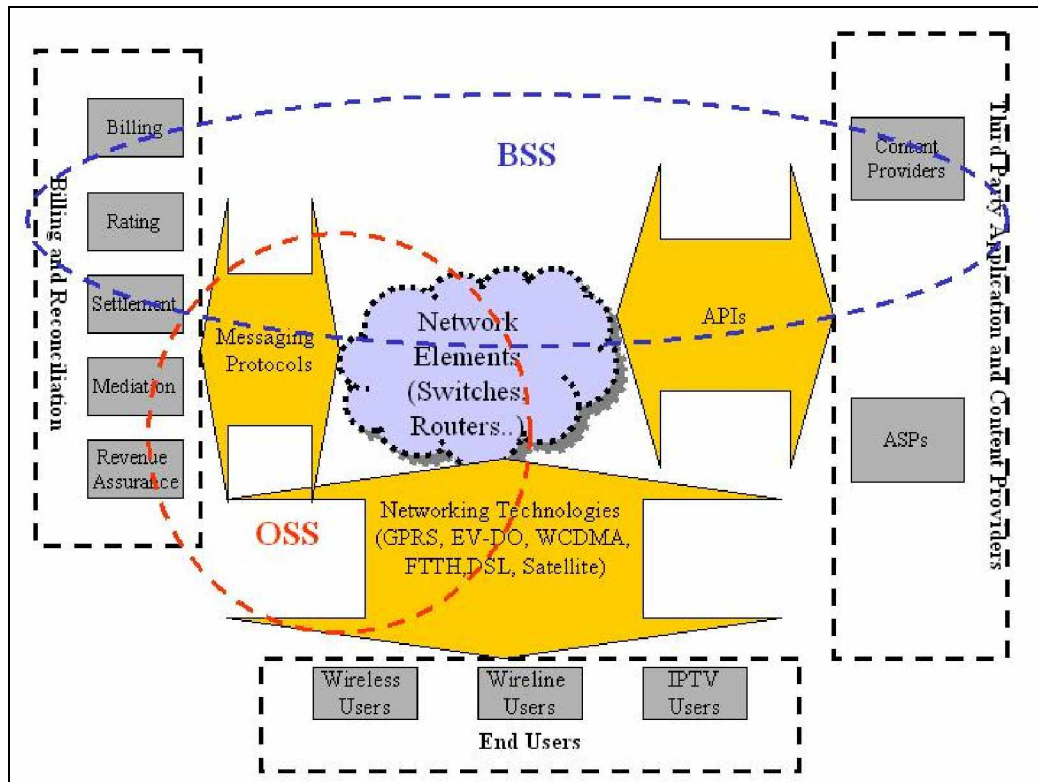


Figure 2-1: OSS and BSS Positions

Functional Modules of OSS

OSS is deployed by the operators to have a finger on the pulse of the network. The OSS concerns with the planning, designing, implementation and maintenance of the network.

Functions carried out by the OSS include

- § Network Planning and Engineering (NPE): NPE functions deal with dimensioning the network based on projected market forecasts. It involves selection of best access technology taking into account geographical and economic factors. The inputs required for this exercise include geographical maps, demographic analysis, customer locations and others. The output of NPE is a network map that contains service types supported, maximum traffic volume supported, customer classes,

network infrastructure costs and operating expenses. Mind Commerce forecasts that the NPE revenues will grow from USD 296.77 million in 2006 to USD 431.62 million in 2011 displaying a CAGR of 7.78%.

[Full reports contains all data and forecasts for all functional modules]

Functional Modules of BSS

BSS is the business partner and organizational facing part of the telecom operator infrastructure.

BSS functions include the following:

- § Billing and Customer Care (B&CC): Telecom retail or subscriber billing functions include generation of call records, processing the call records in a real-time or batch mode based on pre-defined rules (rating), rendering the rated record into the bill and presenting the rendered bill in the prescribed format. Billing processes vary based on type of data recorded, type of access network, whether the subscriber is pre-paid or post paid and the rules of rating the record. Interconnect or wholesale billing deals with the revenue reconciliation among interconnected telecom operators. The processes for wholesale billing remain similar to that of retail apart from the differences in the volume and rating rules. Customer care involves resolution of customer queries and requests, generally through a contact center. Many telecom operators also provide for a web-based customer self-care application wherein the customer where bill presentation, payment and limited service activation can be carried out. Settlement functions reconcile accounts between the telecom operators and the content provider partners. The settlement process is driven by revenue sharing agreements and the computation is based on transaction value, relationship value, volume, service, region, delivery mode and regulatory standards. Mind Commerce forecasts that the B&CC revenues will grow from USD 5967.09 million in 2006 to in 2011 displaying a CAGR of

[See full report for more information and forecasts for all modules]

Challenges for OSS and BSS

On a broader level, the demands posed by NGN over OSS and BSS are as below:

- § Ability to support wide array of rich end-user applications and services
- § Quicker roll-out of the above services and applications
- § Flexible provisioning of services in order to support variations as required by the market
- § Increased efficiency and effectiveness of existing OSS and BSS processes
- § Closer working with multiple business partners
- § Consistent revenue assurance achieved by lower cost of ownership and investment protection.
- § Matching the challenging QoS requirements of end-customers
- § Transparent and seamless inter-process handshake
- § Greater visibility into customer usage patterns and data
- § Ability to support diverse charging and reconciliation mechanisms.

On a more specific level, the challenges faced by OSS and BSS are described in the following sections.

[See full report for more information]

Chapter 3: Approaches and Technologies

As concluded in the previous section, the traditional boundaries between OSS and BSS solutions are getting increasingly blurred. NGN OSS and BSS approaches are woven around a set of common architectural concepts such as loosely coupled components, organization wide message conduit, message based approach and middleware.

This section starts with an explanation of the concepts that are central to OSS and BSS solutions. This is followed by an overview of OSS/BSS frameworks that are still central to the contemporary solutions. Along with the frameworks, common messaging formats between the NE and the operation managers are also discussed. On the BSS side, leading enterprise data organization approaches are analyzed. Finally, widely adopted OSS and BSS architectural approaches are covered in detail.

To conclude, case study of OSS/BSS implementation of BT is included.*

[*In full report]

Fundamental Concepts

Middleware

Middleware is defined as the layer intermediate to the Operating System and the Applications. It is essentially a connecting software that runs a set of enabling services that enables multiple applications processes running on different machines to interact with each other. Middleware connects complex, distributed applications with software components.

Middleware connects the Applications on one side to the OS Platforms on the other. The applications interact with the Middleware through APIs, while the OS has Platform interfaces to do the same. The APIs allow the Applications to locate and interact with other Applications and Services in a transparent manner. It separates the Application functionality from the network and therefore ensures scalability, reliability and availability of the Applications.

- § Having known the above, it is easy to visualize the position of Middleware in the NGN scheme. Middleware is critical to OSS and BSS environments as they involve interfacing.....

[See full report for more information]

Chapter 4: Vendor Analysis

This section classifies the major OSS/BSS vendors. The section includes generic observation about OSS/BSS vendor landscape followed by vendor classification. Finally a summary of significant details of the vendors' business is included.

Vendor Landscape Observations

- § The OSS-BSS solution vendor community has close to 400 active members, making it a very competitive segment. Since the frameworks are largely in place, standards are well-defined and customer requirements are well articulated, there is a large commonality in the product and solution offerings of the vendors.
- § One also notices that all the vendors have a very strong services component, which includes installation, troubleshooting and training functions. These functions are either carried out by the vendors themselves or sourced from their partners.
- § In the true spirit of NGN, it is practically impossible to find a telecom operator embracing a single vendor for all the OSS/BSS requirements. More often than not, it is a mix and match of vendor solutions and products
- § OSS/BSS vendors derive their revenues from product licenses, installation and consulting services, and solution maintenance. All the vendors have competent services arms either within their organizations or outsourced.

Vendor Classification

Comprehensive Solution Providing Pure OSS/BSS Vendors

This class comprises of vendors that are OSS/BSS domain specialists and have solutions that can cater to all major OSS/BSS functions.

[See full report for more information]

Comprehensive Solution Providing Composite Vendors

This class of vendors also offers comprehensive OSS/BSS solutions, however that is not their core expertise. These vendors grow organically through acquisitions and mergers.

[See full report for more information]

Skill-set Extension Solution Providers

This class of vendors thrives on a specific capability which can be implemented in OSS/BSS as well as other business and technology environments. The presence of this group reinforces the fact that OSS and BSS are, in fact similar to other organizational business processes.

[See full report for more information]

Core Strength Concentrators – BSS

Vendors in this class specialize in providing on or more components of the traditional BSS functional modules.

[See full report for more information]

Core Strength Concentrators – OSS

Vendors in this class specialize in providing on or more components of the traditional OSS functional modules.

[See full report for more information]

Vendor Summary

Table 4-1 summarizes the vendors, their web address and headquarters in alphabetical order.

	Web Address	Headquarters
AdventNet Inc	www.adventnet.com	Pleasanton, CA
Agilent Technologies Inc	www.agilent.com	Santa Clara, CA

[See full report for complete list]

AdventNet Inc

Introduction

AdventNet provides software solutions for enterprise IT and Telecom Management requirements. AdventNet provides network management solutions for communications equipment vendors that include EMS, NMS, agents, testing tools and simulation tools for its Communication Equipment Vendor Customers. AdventNet offers carrier-grade network management system, multi-protocol mediation, TL1 mediation, remote monitoring, and management applications for its telco customers.

Product Names

- § CLI API
- § Mediation Server
- § SNMP Agent
- § SNMP API
- § TL1 API
- § TMF Management Solutions
- § Web NMS

Product Features

- § CLI API: Java based environment for development of OS independent CLI applications such as Device Configuration, Alarm and Network Monitoring, Performance Monitoring and Fault Diagnosis. Features include support for Scripting, Terminal emulation, XML Driven Command Generation, CLI Browser and others.
- § SNMP Agent: Includes support for all the three versions, Provision for developing J2ME SNMP v1/v2c and USM, VACM, Target, Community, and Notification MIB support in
- § SNMPv3. Toolkits available for C and Java Edition as well as MySQL.
- § SNMP API: Provides off-the-rack components for trap and table handing and the basic SNMP operations: SNMP GET, SNMP GETNEXT, SNMP GETBULK, and SNMP SET. Features include MIB Loading, SNMP Beans, SNMP Beans, IPv6 Support and others. SNMP APIs for .NET environment are also available.
- § Web NMS: Builds NMS and EMS applications. Features include Event Collection, Alarm Correlation & Filtering, Resource Status Displays, Active Alarm Displays, Auto-discovery, Managed Resource Domains, Graphical Topology View, Remote Management, Software Downloads and others.

Major Customers

AT&T, Sprint, Chunghwa Telecom and Korea Telecom.

Revenues

AdventNet is a privately held company.

Qualitative Assessment

AdventNet benefits from its presence at multiple points in the telecom software value chain: its customers includes telecom operators, OEM vendors as well as ISVs. Therefore, AdventNet has a multi-dimensional view of the architecture of OSS solutions, right from the protocol levels

AdventNet does not have a solid end-to-end branding of its OSS/BSS products. AdventNet has positioned itself as a cost effective products and solution provider. It can leverage its relationships with telcos, vendors, ISVs and enterprises to make a mark as an integrated OSS/BSS solution provider.

Other than being operational in an extremely competitive environment, AdventNet also faces a threat of losing focus on account of the large number of products offered by it.

[See full report for complete details of all vendors]

Chapter 5: Quantitative Forecasts and Analysis

This section presents the quantitative forecasts and analysis. The overall size of the OSS and BSS market is presented at the beginning.

This finding is then split up according to the following:

- § OSS and BSS functions
- § Geography
- § Revenue Component

The split-up is followed by a modular analysis of individual OSS/BSS functions.

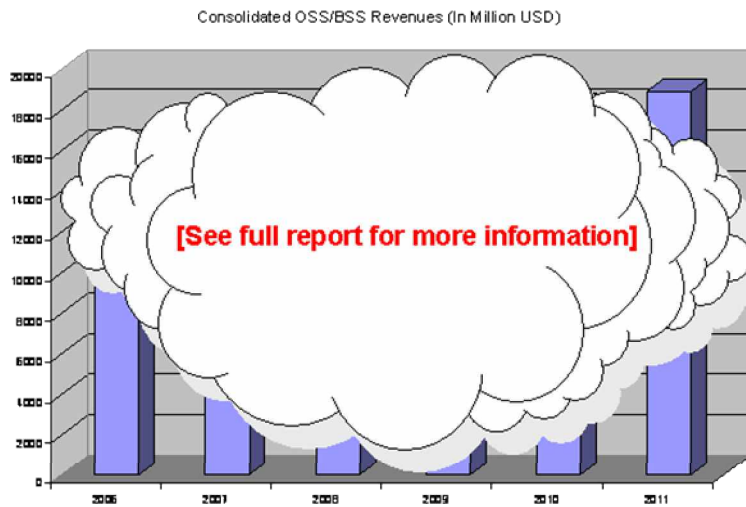
Publicly listed pure OSS/BSS vendors are ranked according to their profitability for the year 2005.

Forecast Methodology

This report has derived historical and contemporary market data from published financial reports of listed companies, data published by industry bodies and other sources. Using this data, first and second order arithmetic and geometric progression are employed with appropriate weightage assignment for different variables.

Overall OSS and BSS Software Market

Chart 5-1: Consolidated OSS/BSS Revenues (In Million USD)

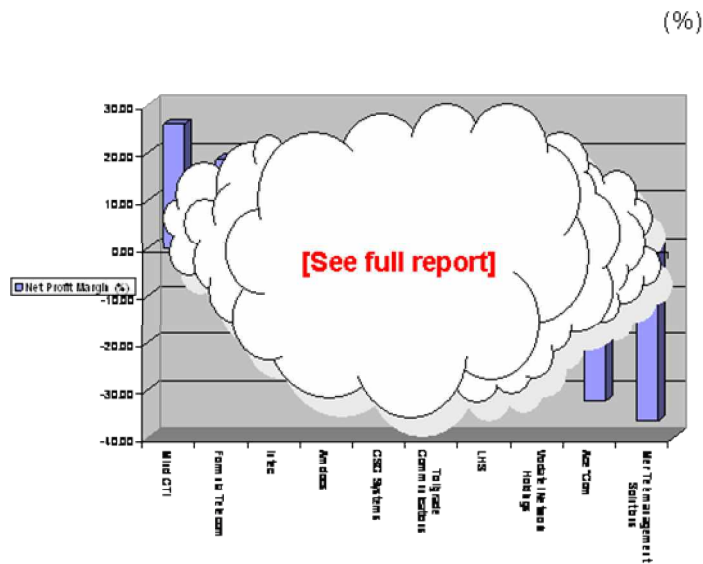


	2006	2007	2008	2009	2010	2011	CAGR %
Consolidated OSS/BSS Revenues 2006-2011	See full report	See full report	See full report	See full report	See full report	See full report	See full report

[See full report for actual data for each forecast]

OSS/BSS Vendor Rankings Based on Net Profit Margins

Chart 5-33: OSS/BSS Vendor Ranking Based On Net Profit Margins



Vendor	Net Profit Margin (%)
Mind CTI	23.5
Formula Tele	18.5
Intec	15.5
Amdocs	12.5
CSG System	10.5
Tollgrade Coi.	8.5
LHS	5.5
Vodatel Network Hol	2.5
Ace*Com	-2.5
Mer Telemangement Solutions	-5.51

[See full report for actual vendor rankings]

Chart 5-34 ranks the vendors based on their Net Profit Margins. The criteria for vendor selection is that they are

- § Pure OSS/BSS vendors
- § Publicly listed and traded

The relatively smaller number of such profitable vendors indicates the stiff competition in the market space as well as the active M&A activity that absorbs independent profitable vendors.

Conclusions

[See full report for more information]

Recommendations

[See full report for more information]



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