

24 October 2011

Magic Quadrant for Operations Support Systems

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This Magic Quadrant evaluates the capabilities of end-to-end vendors in the global market for OSS service assurance and fulfillment, a market characterized by simultaneous consolidation and vibrant innovation by startups.

What You Need to Know

This document was revised on 2 November 2011. The document you are viewing is the corrected version. For more information, see the [Corrections](#) page on gartner.com.

The overall market for operations support systems (OSSs) has matured over the years, to the extent that numerous vendors offer pre-integrated, modularized, out-of-the-box product functionality, with an increasing level of standardization and less customization. Technology itself is increasingly becoming a commodity differentiator, achieved through professional services that include transformational leadership and new delivery models such as hosted and cloud services.

The vendor landscape reflects changing OSS investment patterns, which are set to enable the transformation of major operational value chains. Driven by the requirement to improve operational efficiency, while at the same time creating new revenue sources and achieving competitive differentiation through improved end-user experience, communications service providers (CSPs) are streamlining their back-office systems. A significant modernization of their entire OSS systems stack is indispensable in the light of new business models and technology investments in Long Term Evolution (LTE), Internet Protocol (IP), WiMAX and fiber, as well as third-party value chains. Lower-tier CSPs in particular are starting to build business cases for alternative hosted, cloud and managed services, providing multitenancy OSS and adjacent business support system (BSS) application administration, amid desired reductions in operating expenditure (opex).

Those vendors that are leading the current OSS market possess the right mix of best-in-class, standardized products, adequate professional services consulting, hosting and system integration capabilities. CSPs expect OSS vendors to supervise the entire evolution of processes, organization, network and IT operations from a holistic perspective. This involves a great deal of solution and process consulting, system integration and architectural guidance, as well as enabling third-party content creation and exposing OSS processes to partners.

Typically, CSPs have heterogeneous OSS environments, including a myriad of legacy solutions. As CSPs are now narrowing their list of strategic vendors, they need to take into account many

commitments when investing in OSSs (in terms of architectural evolution, expected ROI, and the buy-in of numerous business and technical stakeholders), as they shortlist strategic OSS suppliers. They expect those trusted partners to engage multivendor technology expertise, as well as to take the role of system integration partners. However, vendors frequently lack the knowledge of adjacent OSSs and are unable to provide the multivendor service capabilities that are crucial in heterogeneous environments. Vendors' integration and consulting services may even lag behind their own products.

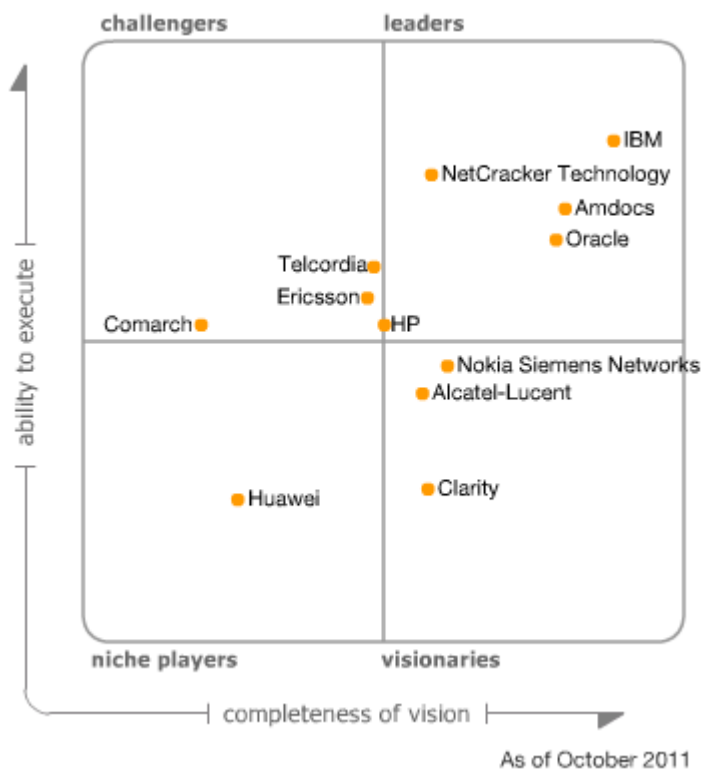
A "helicopter perspective" of a CSP's overall OSS and transformation guidance, accompanied by strong multivendor skills, is now indispensable.

OSS vendors need to take a good look at the underlying premises of their product/service strategies:

- They should ensure a succinct transfer of knowledge to CSPs' in-house architects in alignment with business processes. Knowledge transfer is even more critical if the product is a third-party one.
- Smaller independent software vendors (ISVs) need to build a global and local system integration partnership network so they can grow to the next level.
- Simultaneously, if there is another OSS system integrator (SI) involved, the most successful OSS ISVs always build a strong, direct and hands-on relationship with customers to avoid the risk of failure and redundant product customizations.
- Large vendors with a services-led blueprint approach (which fill this blueprint mostly with partner products) should add their own product offerings. CSPs prefer to work with one vendor for products and services to avoid having to deal with another third party.
- To succeed, leaders in this market are generally inclined to provide a healthy balance between products and services.

Magic Quadrant

Figure 1. Magic Quadrant for Operations Support Systems, Worldwide, 2011



Source: Gartner (October 2011)

Market Overview

Competitive and economic pressure is forcing CSPs to reduce their operational expenditure, but equally to focus on delivering superior customer experience and rapid time to market. OSSs are seen as strategic tools to provide competitive differentiation in terms of the quality perceived by customers and the speed of the service. CSPs are making incremental improvements to their fulfillment and assurance processes to improve the quality of their services and overall IT and network infrastructures. Nevertheless, CSPs tend to exhibit careful judgment, often involving C-level executives, and usually base their OSS investment decisions on a proven ROI.

Most CSPs continue to experience difficulties in the complex administration of heterogeneous OSS systems, purchased from various vendors, and organized in silos throughout their entire operations. This situation inhibits the fast deployment of new products and services, while failing to ensure the integrity and consistency of data across redundant solutions. Contemporary, revised OSS infrastructures have to enable convergent services across different technologies and network environments, such as fixed, mobile, broadband, IP Multimedia Subsystem (IMS) and IP. CSPs need to become more effective in the fulfillment and assurance of complex composite service bundles across various technologies. Technology convergence requires more proactive OSSs;

for example, providing a network and service topology view that allows cohesive correlation between network technology and services.

End-to-End Alignment Changes the Game

New converged and composite services are becoming more complex, and often comprise telco networks and IT as well as third-party content. This situation imposes the need for greater operational agility for the rollout of new services, and requires an end-to-end operational view. Also, the greater focus on customer experience prompts CSPs to remove their organizational and systems silos. This implies a shift toward process-driven, end-to-end OSS solutions, with a clear congruent view of business and system processes in which data is leveraged across commercial and technical constituents in the CSP enterprise. Moreover, CSPs gradually need to move to a cohesive view beyond OSS, which embraces adjacent areas such as CRM, BSS, customer experience management (CEM) and service delivery platforms (SDPs). As a consequence of this end-to-end evolution, CSPs need to take the lead in defining their own end-to-end architecture, and position vendors within that framework.

Ample Investment in New OSS Architectures

Because of these shifting prerequisites for CSPs, we see CSPs worldwide investing in more flexible OSS architectures, which improve the efficiency of service creation, management and timely delivery, and allow them to proactively optimize customers' perceived quality of experience. Simultaneously, CSPs need to keep an eye on opex and capital expenditure (capex). Major OSS investment areas include order to fulfillment processes across logical inventory and adjacent product and service catalog domains, and policy management. On the other hand, we see a major revitalization around service quality management and the corresponding network performance and capacity planning, which often revolve around enterprisewide CEM initiatives, by adding an additional analytics and data correlation layer.

Overall, we expect the worldwide OSS market to grow from \$25.3 billion in 2010 to \$32.9 billion in 2015. The market consists of more than 10 leading vendors, each with revenue of more than \$500 million. In addition there are a number of vendors that have a considerable impact on the market because of their innovative or niche offerings, or because their OSS solutions are embedded in a wider telco software suite. Inventory is expected to grow at a compound annual growth rate (CAGR) of 5.9% through 2015, network and service assurance (including customer experience initiatives) at 7.1%, and provisioning and activation at 6.2% worldwide.

Changing Sourcing Patterns

Based on the operational agility requirements outlined above, we see CSPs moving toward the sourcing of aligned end-to-end solution processes, rather than best-of-breed models. This advance also points to a shift toward a larger proportion of out-of-the-box product functionality and fewer professional services, to meet the major pain points in reducing integration and customization charges.

Moving forward, CSPs will limit their list of preferred suppliers even more aggressively, to only a few key strategic partners. We see this happening despite CSPs' initial suspicion about handing over control in two or possibly more of the strategic IT areas mentioned above to one single vendor.

CSPs mostly select one best-in-class vendor for fulfillment and another for service assurance, increasingly for multiservice or technology support. Even those two key OSS domains converge as CSPs become more experienced and move up the maturity curve.

These developments are gradually reshaping the OSS vendor landscape in favor of suite vendors, which offer standardized, modularized, pre-integrated end-to-end solutions and services (as offered by the vendors in this Magic Quadrant).

Ongoing Consolidation of the OSS Vendor Landscape

As a consequence of the end-to-end evolution in the market, we can see a strong trend toward greater concentration of vendors. This trend will be sustained, motivated especially by larger companies picking up smaller point solution players to complete their end-to-end solutions. The current market consists of a few large global vendors that offer end-to-end OSS solutions, and a number of smaller vendors that offer highly specialized point solutions and products. At the same time we see vibrant startup activity, and emerging smaller vendors addressing evolving CSP solution needs in the context of managing new operational complexities. Those niche vendors frequently fill the market gaps left by established vendors in, for example, order management, service creation, fulfillment and product catalog management.

OSS Business Is of Strategic Importance to NEPs

Network equipment providers (NEPs) increasingly augment their offerings with OSSs as a means of strategic differentiation, and to offset declining income in their core network equipment business, as well as the diminishing value of traditional electronics manufacturing service companies and network management system vendors. As a result, NEPs are moving higher up the service layer value chain. The rationale behind this market shift is that customers require more than just the pure supply of network infrastructure from NEPs. Conversely, NEPs are increasingly pulled in by their customers to solve problems at the service layer (particularly fulfillment, provisioning and network/service inventory) in conjunction with the network. This holistic view is necessary to manage underlying interdependencies between network and services, and to facilitate the rollout of new, complex services.

NEPs also increasingly sell OSSs as stand-alone, multivendor OSS solutions. Most NEPs already have a wide range of OSS ISV capabilities and are further seeking to widen their product capabilities — through acquisitions, for example. Ericsson's acquisition of Telcordia is the most prominent example in this context. However, the greatest challenge is to beef up multidomain vendor management and deliver proof points for viable multivendor expertise.

In future, we expect NEPs to also seize new business opportunities related to providing a single operational layer that can be outsourced or managed, addressing various CSP maturity levels and business models.

Market Definition/Description

OSSs comprise software applications that facilitate CSPs' back-office operations. OSSs consist of two major domains: network/service assurance and service fulfillment.

- Network/service assurance encompasses all the tools and procedures intended to optimize network and service performance, which have an impact on end users' perceived quality of experience with a given CSP.
- Service fulfillment encompasses all actions and processes involved in implementing a service order and provisioning the service to the customer. This involves, for example, specifying the pieces of equipment and parts of the network that are needed for the service, and the allocation of bandwidth in the transport network.

OSS service fulfillment includes the following sub-segments:

- Inventory/resource management.
- Provisioning and activation.
- Planning and engineering.
- Workforce management.

Inclusion And Exclusion Criteria

Vendors included in this Magic Quadrant are those that offer multiservice and multitechnology, end-to-end solutions to the global market. These companies are ranked among the top 10 vendors featured in our annual telecom operations management systems (TOMS) market share report. We also include smaller vendors (in revenue terms) that offer comprehensive fulfillment and assurance solutions and, as such, have a significant impact on the market and represent a viable sourcing alternative to the market share leaders.

Inclusion Criteria

- **Solution vendors** — we include software and service-only vendors that earn significant revenue from both software and services. NEPs with extensive OSS product portfolios are also included in this category.
- **Functionality** — the software suite has to provide the full range of OSS functions, in either of the service assurance or service fulfillment areas, or in both.
- **Market impact** — we include only high-end vendors (in terms of market share), as well as smaller/midsize players that have a significant impact on the market.

Exclusion Criteria

- SIs that do not have their own software suites are excluded.
- This report covers only convergent solutions. Those that address only cable providers or ISPs are excluded.

Vendors Added

Not applicable — this is the first Magic Quadrant for OSSs.

Vendors Dropped

Not applicable — this is the first Magic Quadrant for OSSs.

Evaluation Criteria

Ability to Execute

Gartner analysts evaluate technology providers on the quality and efficacy of the processes, systems, methods or procedures that enable them to be competitive, efficient and effective, and that positively impact revenue, retention and reputation. Ultimately, technology providers are judged on their ability and success in capitalizing on their vision (see Table 1).

Table 1. Ability to Execute Evaluation Criteria

Evaluation Criteria	Weighting
Product/Service	High
Overall Viability (Business Unit, Financial, Strategy, Organization)	Standard
Sales Execution/Pricing	Low
Market Responsiveness and Track Record	High
Marketing Execution	No rating
Customer Experience	No rating
Operations	No rating

Source: Gartner (October 2011)

Completeness Of Vision

Gartner analysts evaluate technology providers on their ability to convincingly articulate logical statements about current and future market direction, innovation, customer needs and competitive forces, and how well they map to the Gartner position. Ultimately, technology providers are rated on their understanding of how market forces can be exploited to create opportunities (see Table 2).

Table 2. Completeness of Vision Evaluation Criteria

Evaluation Criteria	Weighting
Market Understanding	No rating
Marketing Strategy	High
Sales Strategy	Standard
Offering (Product) Strategy	High
Business Model	No rating
Vertical/Industry Strategy	No rating
Innovation	No rating
Geographic Strategy	Standard

Source: Gartner (October 2011)

Leaders

Leaders in this market have strong market presence and significant market share, most of them globally. All leading vendors portrayed in this Magic Quadrant have a comprehensive OSS offering and would still be Leaders even if they needed partners. They adopt a leading-edge position by offering comprehensive, pre-integrated, modularized TOMS suites. Beyond OSSs, all leading vendors encroach into the adjacent BSS and SDP markets. Leaders are well positioned with their current product and service portfolios and their strategies. They have a coherent vision that anticipates current and future requirements. Leaders may not offer the best solution for every type of CSP, depending on their business models and maturity. However, they have proven implementation viability and can achieve and sustain high-quality, low-risk deployments.

Vendors in this quadrant are: IBM, NetCracker Technology, Amdocs and Oracle.

Challengers

Challengers are technology providers with strong execution capabilities and high-quality products and services. They currently execute well for the most part, and dominate large segments; however, they do not yet fully understand the direction of the market. Moreover, the breadth and depth of their products does not match the capabilities of Leaders in this market. Their vision is not as clear and their strategy not as compelling as those of the Leaders. Their overall solutions still have some gaps and not quite the same level of feature and functionality advancement and innovation as those of the Leaders.

Vendors in this quadrant are: Comarch, Telcordia, HP (which lies between the Leaders and Challengers quadrant) and Ericsson.

Visionaries

Visionaries have put together a compelling OSS strategy in anticipation of CSPs' key pain points in the future, and which details how to address those pain points with innovative OSS products and services. Vendors in this category therefore demonstrate a clear market understanding. Yet they still lack certain skills in the area of execution to enable them to move into a leadership position. Either they have not yet fully expanded their sales and support capabilities, or they do not yet have the funding and scale, or the required solution assets, to execute at a leadership level.

The main characteristic of vendors in the Visionaries quadrant is that they are not as stable as the Leaders, nor are their execution capabilities as advanced. Visionaries are usually in the phases of transition; some are about to move into a leadership position once they improve in one key area, such as beefing up their critical product or service capabilities. They could achieve this stable state by gaining market strength and scale, or simply by achieving wider adoption of their solution in the market.

Vendors in this quadrant are: Nokia Siemens Networks, Alcatel-Lucent and Clarity.

Niche Players

The vendors in this quadrant offer products and services that cover a subset of functionality or focus on a certain geography. They usually lack a well defined strategy and a compelling vision moving forward. Niche Players are unfocused and do not out-innovate or outperform other vendors. To move in the Magic Quadrant they need to fill vital solution gaps and work on pre-integrating partners, or build their own service capabilities.

Vendors in this quadrant are: Huawei.

Vendor Strengths and Cautions

Alcatel-Lucent

Alcatel-Lucent's strategy in the OSS market is a services-led solution blueprint, which to a large extent is filled with pre-integrated, best-of-breed partner software products, blending in service expertise that spans telcos' networks and operations. Among its key partners are Amdocs and Comptel for fulfillment and IBM and BMC Remedy in the OSS assurance domain. Apart from this, Alcatel-Lucent has revived its existing Motive assets to build a convergent, multi-technology service quality management solution, which allows multiple commercial and technical stakeholders within the CSP organization to manage service quality end-to-end.

Strengths

- Alcatel-Lucent has an extensive partnership network with various best-in-class OSS fulfillment and assurance vendors worldwide. It provides strong system integration capabilities and data-driven architectural vision for its own OSSs, including partnership products.
- The company's strategy is to continue developing innovative, niche software product functionality, thereby rounding off its best-of-breed OSS products.

- It has achieved similar market traction and coverage in all major geographies.

Cautions

- The company needs to further expand its own product offerings to grab important market share in the end-to-end OSS market. For example, Alcatel-Lucent's service quality management and fault management assets may be a viable option for CSPs that are seeking a customer-centric service assurance solution, in conjunction with adjacent fulfillment, charging, policy and bandwidth management.
- CSPs expect Alcatel-Lucent to cover an even wider range of non-strategic ISV products in addition to its extensive strategic partnership network that comprises various best-in-class OSS fulfillment and assurance vendors worldwide. This is vital as CSPs' OSS system environments become increasingly heterogeneous.

Amdocs

Amdocs is positioned among the leading end-to-end OSS, BSS, CRM and SDP solution providers worldwide, with its CES 8 product focusing on all aspects of the customer experience. The company provides its own software in conjunction with consulting, system integration and product implementation services. The company's acquisitions of JacobsRimell, Cramer and Bridgewater Systems were strategic moves to fill solution gaps in the OSS space.

Strengths

- Amdocs addresses CSPs' evolving strategies, which are moving toward end-to-end integration across OSS constituents, to ensure operational efficiency and create new revenue streams. Amdocs' strong services approach suits those CSPs that are looking to evolve next-generation OSSs alongside multiple legacy OSSs.
- In particular, Amdocs accommodates the needs of larger CSPs that are seeking to work with a smaller number of strategic suppliers as part of an incremental migration.
- Amdocs is known for an aggressive sales and marketing strategy and execution that is very customer-focused.
- The company's major development efforts center on prepackaged, configurable Operational Product Packs that reduce the time to deployment for a process to support a specific service or technology — such as broadband fulfillment. This advancement may change CSPs' perception that Amdocs' software products still require a level of customization that is above the industry average.

Cautions

- CSPs may be concerned about how much control of their IT/network application and services environment to leave to Amdocs.
- It tends to be difficult for CSPs to estimate the overall total cost of ownership prior to project launch, as not all required modifications in their legacy environments may be visible upfront.

Clarity

This Australian ISV offers a standardized, modular, end-to-end software suite that spans the entire OSS service assurance and service fulfillment value chain. Its merger with Omnix Software in 2010 further augmented its OSS suite with enterprise resource planning. The company's strategy is profitable and it has aspirations for further international expansion.

Clarity is one of the Visionaries in this market, providing OSSs to enable business vision with an agile, end-to-end solution that helps CSPs reduce costs and improve time to market.

Strengths

- Set up to minimize integration complexity, Clarity's hybrid out-of-the box approach is characterized by a high level of standardization, yet it allows for necessary customization. The architecturally unified solution framework helps CSPs in emerging markets and Tier 2 to 3 CSPs to reduce integration tax and monetize new market opportunities swiftly. The solution supports multiservice operations and multinet network technologies — both legacy and next-generation network IP.
- Clarity communicates its vision and product strategy clearly through its product road map.
- The company recently reported its first success in the market for hosted and cloud services in Australia and New Zealand, which could serve as a reference for other markets.

Cautions

- So far Clarity has had limited results in leveraging its success with its Fulfillment and Assurance suites in emerging markets into the more developed markets of Western Europe or North America, where it has a base of customers through the Omnix acquisition.
- It has only recently begun deploying Tier 1 complex and advanced application requirements that support low-volume yet highly complex next-generation services, such as IMS and IPTV, to fulfill the requirements of CSPs in mature markets.

Comarch

Comarch is a multi-industry IT business solutions provider with a particular focus on the telco vertical. It is a Challenger in this Magic Quadrant, and provides an end-to-end, modularized OSS/BSS suite, based on an open architecture and without the necessity of utilizing the whole stack. Comarch is located in Poland, a relatively low-cost country, meaning it can compete on price.

Strengths

- A strong framework approach, and an open and flexible architecture based on service-oriented architecture and business process management principles, ensure ample interoperability with legacy systems.
- Among Comarch's differentiators is the intrinsic process modeling functionality of its suite, which is offered as process-driven, integrated inventory management and next-generation service assurance products.
- Initially catering to lower-tier CSPs, Comarch has also gained traction with larger companies, especially some of the pan-European CSPs such as T-Mobile and Vodafone. The company is now seeking a strategic

supplier position through incremental expansion of existing customer deals. A common competitive differentiator for European CSPs appears to be Comarch's nearshore presence.

Cautions

- Comarch mostly implements its own products. The fact that there are not many certified Comarch SIs limits CSPs' choice of preferred system integrators. This situation will limit Comarch's ability to grow its business, also because CSPs may fear vendor lock-in.
- Comarch initially tackled this market with a network engineering approach, but is now also registering increasing customer traction in service layer domains, particularly fulfillment, in addition to service assurance.

Ericsson

Ericsson is one of the leading network equipment and service providers, and is particularly strong in the wireless space. It has built out related OSS software and service assets. Key assets comprise end-to-end provisioning, which in turn comprises subscribers, content and devices. Large parts of its own OSS product portfolio focus on network and performance management, and element management for Ericsson's own equipment.

Ericsson's planned acquisition of Telcordia, which is expected to be completed by the end of 2011, will be a further step for the NEP toward filling major solution gaps in its OSS portfolio, and toward building a viable multivendor OSS fulfillment and assurance solution. So far, the company has covered these product capabilities with best-of-breed partner products.

We expect that the completion of the acquisition will raise Ericsson's competitive positioning in the OSS market.

Strengths

- Ericsson has recently added new capabilities with its Ericsson Network IQ (ENIQ) and OSS Navigator products, to enable CSPs to move from network to service assurance. This comprises analysis and reporting on subscriber and service usage trends, alerts on service degradation, and providing data inputs on SLAs. The company's future road map includes advanced real-time and event tracing and analytics correlation.
- Ericsson is a global company with local customer delivery and competencies in most geographies, empowering a decentralized customer delivery and support structure.
- The strength of its global services organization provides competitive differentiation regarding the extent of its consulting, managed services and system integration resources, coupled with advanced product management capabilities. In the OSS context, this setup enables Ericsson to leverage vital insights into CSPs' operations, and to address their pain points holistically across the network, IT and services, as well as corresponding business processes.

Cautions

- For a company of its size, we have yet to see Ericsson also taking a prime position in some of the large CSP transformation deals.

- Ericsson still needs to improve market communication and positioning around its newly launched customer-centric, end-to-end OSS service assurance solution. ENIQ and OSS Navigator need to mature in the market, as major event correlation and analytics capabilities are added to enable them to reach their potential.

HP

HP has a comprehensive OSS portfolio, including products that address life cycle management, planning and engineering, activation and assurance. A large portion of HP's overall OSS revenue, including network legacy and maintenance contracts, is derived from its network and service management business. The ultimate goal for HP is to reach a healthy 40/60 ratio for product and service revenue.

Strengths

- HP's Integrated Service Solutions (ISS) comprises specific pre-integrated product bundles that span next-generation OSS fulfillment and assurance. Products such as HP's CME Service Quality Management and TeMIP Fault Management, and the company's performance management solution, have been enhanced to support off-the-shelf report packs for different technologies (such as IPTV, IMS and Multiprotocol Label Switching).
- HP's Solution Consulting Services (SCS) is an important element in the company's portfolio. It provides corresponding OSS and business transformation capabilities, including process management, architectural guidance and financial evaluation. HP recently signed its first significant OSS transformation deal with Deutsche Telekom.
- HP is gaining customer traction in the OSS domain. Besides traditional license implementation projects, HP is well positioned to anticipate more extensive market opportunities in the OSS services domain, namely managed services, outsourcing and hosted services, such as the cloud.

Cautions

- HP needs to define and communicate a more cohesive story around its next-generation OSS moving up the service layer stack, and its front-end customer-facing capabilities such as real-time CEM.
- A large chunk of HP's overall OSS revenue, including legacy and maintenance contracts, still comes from its network business.
- To fully exploit its potential, HP needs to further integrate various OSS product assets.

Huawei

Huawei is currently positioned as a Niche Player in Gartner's OSS Magic Quadrant. Huawei's OSS software is embedded predominantly within Huawei's network equipment, comprising basic network and performance management, troubleshooting and provisioning. Huawei earns OSS service revenue by providing customization and system integration services for third-party OSSs (namely HP and IBM). Huawei integrates most vendors into existing CSP environments without having formal partner agreements in place.

Strengths

- Huawei is ranked among the world's leading wireless NEPs, with assets in IP, LTE and WiMAX, which it could leverage with its OSS business. Its stance with many top CSPs could open doors and represent growth opportunities.
- Huawei has strong element management for its own network equipment, but doesn't have a holistic OSS in a multivendor domain with services at customer sites.

Cautions

- Huawei's OSS business is dispersed across its organization. Huawei does not have a centralized organizational unit for OSS, because the company usually provides OSS software as an add-on to network equipment sales, and doesn't have a separate price tag for OSS software.
- The company has not been able to position its OSS products coherently. Its strategy is fragmented.
- Huawei lacks an OSS blueprint with a lucid architectural vision. It has gaps in its OSS product portfolio and needs to develop or acquire vital OSS product and service elements to fill those gaps.
- To take a leadership position Huawei needs to venture significant assets to get closer to a credible multivendor approach.

IBM

IBM is the leading worldwide OSS player in this Magic Quadrant, and is the overall OSS market share leader (see "Market Share: Telecom Operations Management Systems (BSS, OSS and SDP), Worldwide, 2009-2010"). To establish a leading position in service assurance and fulfillment, IBM has amalgamated its flagship product Tivoli with numerous acquired assets to create a comprehensive end-to-end OSS fulfillment and assurance suite across CSPs' operational network and IT domains. Tivoli Netcool and Maximo accompany performance and service management with adjunct fulfillment tasks, such as trouble ticketing, configuration management and provisioning. Complementary best-of-breed OSS product functionality is sourced through strategic partnerships, such as the company's relationship with Amdocs.

Strengths

- IBM's consultative framework approach revolves around operational and business process expertise, and provides a balance of best-in-class products and services from its own portfolio and those of its partners. This approach also enables IBM to leverage its assets to prime many large end-to-end OSS process management and transformation projects.
- The Tivoli Netcool Technology Program is dedicated to ensuring interoperability and knowledge transfer for third-party OSS vendor products. The program also allows IBM to anticipate technology evolution, by embracing new technologies and services under management early in the life cycle of any OSS solution.
- Based on a single OSS architecture across fixed, mobile, broadband and data center environments, IBM addresses CSPs' needs for scalability, real-time throughput and openness, while allowing for legacy integration. The company continues to invest strongly in the evolution of its OSS assets. Recent supplements include service desk and workflow management capabilities derived from the Maximo portfolio, addressing data and content management and storage.

Cautions

- CSPs may view IBM's OSS solutions as monolithic, with a licensing policy that lacks transparency. Smaller CSPs may find IBM's solution too expensive to maintain.
- CSPs' operational CEM initiatives require IBM to enhance its Web-based performance analytics and reporting capabilities (for example, to correlate network events and the subsequent operational metrics). IBM's OSS solution would also benefit from supplementary investments into WebSphere and Web 2.0 to improve presentation and automation.

NetCracker Technology

NEC's independent software arm is ranked among the fastest growing OSS companies worldwide. The company provides a complete, mature service fulfillment product suite centered on services, products and service and network resource management. NetCracker's origins lie in its inventory management offering, which has expanded over time to cover a broader set of end-to-end offerings in the fulfillment domain, which now embraces logical and physical network inventory, as well as product catalog and service inventory/service catalog functionality.

Strengths

- NetCracker has developed a pre-integrated, highly configurable, modular fulfillment suite, which is based on one multiservice, multitechnology and network core platform, leveraging architectural openness and Web-based, Java EE capabilities.
- NetCracker's strength is to address systematic problems at the service layer (fulfillment, provisioning and service inventory). The service-to-resource topology allows underlying interdependencies between services and the network to be managed, which facilitates the faster rollout of complex, next-generation services.
- The company has a strong product road map, with a focus on innovation, service orientation and service representation in architecture and process. Since NEC's acquisition of NetCracker in 2009, the company has focused on augmenting resources, such as service assurance, order management and workforce management, thereby forming a comprehensive telecom operations management value proposition for the telco industry.

Cautions

- NetCracker enjoys strong recurring revenue through the further penetration of existing accounts (via cross-sell and upsell). Once that revenue source starts to decline the company needs to find new sources of growth and win new customers.
- In the light of ever increasing requirements from CSPs for integration and interoperability, NetCracker will need to build a wider system integration and ISV partnership network to meet CSPs' evolving needs for multivendor technology services.
- NetCracker needs to scale its professional service resources to meet project needs.

Nokia Siemens Networks

Nokia Siemens Networks' (NSN's) OSS product portfolio centers largely on its NetAct platform, which stems from Nokia's side of the business, and has been deployed in about 400 installations in major markets worldwide. NetAct is one of the most technically mature OSS suites in the market, as a result of large R&D investment to enhance NetAct with vital functionality, such as service monitoring and customer impact analysis. The solution is based on an open and flexible architecture, enabling a multivendor focus. Together with NSN's Serve atOnce service management tools, NetAct also provides the foundation for the evolution of the NSN Customer Insights solution, which provides intelligence for proactively monitoring and managing end-user interaction and customer experience.

Strengths

- NetAct comprises a wide-ranging application layer. The solution can be leveraged as a transformation tool that enables consolidation and modernization of end-to-end service assurance legacy environments that encompass network and service layers, even across multiple CSPs.
- NSN addresses CSPs' key pain points with a persuasive marketing message. The key point is to deliver a personalized user experience through the abstraction of underlying data complexity and process automation, reducing costs and enabling new revenue streams.
- NSN is gaining early traction with its CEM solution, which focuses on managing end-to-end network services and customers' perceived quality of experience, through the real-time correlation of commercial and technical key performance indicators across enterprise resources, including the network, OSSs, BSSs and CRM.
- NSN has the potential to increase its OSS-related revenue, especially in the areas of mobile broadband and 4G/LTE, self-organizing networks and the cloud, which are among CSPs' current key pain points.

Cautions

- We expect NSN to prove even stronger execution capabilities moving forward. The company needs to live up to its compelling vision and product strategy, and capitalize further on the distinctive OSS market opportunities outlined above.

Oracle

Over the years, Oracle Communications has built a significant OSS presence and made strategic acquisitions of OSS software solutions (such as MetaSolv), predominantly in the fulfillment domain. Furthermore, Oracle has continuously evolved those acquired assets to achieve organic growth. The company's road map addresses the current market evolution toward more standardized, out-of-the box product functionality, to help CSPs drive down integration costs and eliminate customization efforts where feasible.

Strengths

- Oracle provides productized and pre-integrated OSS application modules in the form of an agile service fulfillment framework that is fast to configure. The best-of-breed solution allows for further enhancements and customization as the business progresses, and is based on a strong architectural foundation.

- Oracle has an effective sales and marketing strategy, which focuses on cross- and upselling to extend its OSS offerings to existing Oracle customers, to provide end-to-end "order to activate" solutions. Oracle continues to leverage its extensive global sales channel and partners to further increase the revenue of its OSS business.

Cautions

- Although Oracle has delivered fully integrated product-based solutions, such as Oracle Communications Rapid Offer Design and Order Delivery, work is still required to more fully integrate its OSS components with the rest of Oracle's Communications portfolio, leveraging its Application Integration Architecture for Communications.
- Oracle's product-based business model implies that its success depends heavily on the successful deployment of its products, many of which are delivered by its partners. There is a risk of increased project customization by partners, which might increase costs.
- Oracle does not always successfully communicate its product road map features to customers and system integration partners to help them correctly anticipate product evolution expectations.

Telcordia

Telcordia is one of the world's largest single suppliers of OSS products and services, providing a comprehensive suite of planning and engineering, service assurance and fulfillment solutions. It has a strong tradition in the telco engineering sphere, which reaches back to its split from AT&T in 1984. Telcordia has been owned by Warburg Pincus and Providence Equity Partners since 2005. Ericsson's planned acquisition of Telcordia was announced in June 2011 and is awaiting regulatory approval.

Strengths

- Telcordia is experiencing growth momentum in rising technologies, such as fiber to the x (FTTx), carrier Ethernet, wireless backhaul, mobile data and mobile broadband, and IP.
- Telcordia has one of the most comprehensive product portfolios in the industry, including a leading-edge inventory solution with its Granite Inventory and Network Engineer design tools. Its integrated logical inventory and outside plant/GIS solutions permit joint physical and logical value propositions, which creates strong demand in the FTTx and fiber domains. ESRI's physical inventory, which is integrated into Telcordia's solution, is customized and adapted for telcos.
- Telcordia's products are highly configurable, with around 80% out-of-the-box capabilities, and only 20% customization required.

Cautions

- Since Warburg Pincus acquired it in 2005, Telcordia has shown only modest growth. It hasn't fully realized its potential as a distinctive legacy player in conjunction with providing long-term guidance for CSPs migrating to next-generation business and operations, such as IP, WiMAX, IMS and LTE, to compensate for declining maintenance revenue.
- For a company of its size with a broad portfolio, Telcordia still has limited international visibility.

- The company has been unable to compensate for gradually declining legacy revenue with next-generation revenue, and it has struggled to increase its new revenue. This may be because the company has not done enough to communicate and position a coherent product strategy.

Vendors Added or Dropped

We review and adjust our inclusion criteria for Magic Quadrants and MarketScopes as markets change. As a result of these adjustments, the mix of vendors in any Magic Quadrant or MarketScope may change over time. A vendor appearing in a Magic Quadrant or MarketScope one year and not the next does not necessarily indicate that we have changed our opinion of that vendor. This may be a reflection of a change in the market and, therefore, changed evaluation criteria, or a change of focus by a vendor.

Evaluation Criteria Definitions

Ability to Execute

Product/Service: Core goods and services offered by the vendor that compete in/serve the defined market. This includes current product/service capabilities, quality, feature sets, skills and so on, whether offered natively or through OEM agreements/partnerships as defined in the market definition and detailed in the subcriteria.

Overall Viability (Business Unit, Financial, Strategy, Organization): Viability includes an assessment of the overall organization's financial health, the financial and practical success of the business unit, and the likelihood that the individual business unit will continue investing in the product, will continue offering the product and will advance the state of the art within the organization's portfolio of products.

Sales Execution/Pricing: The vendor's capabilities in all presales activities and the structure that supports them. This includes deal management, pricing and negotiation, presales support, and the overall effectiveness of the sales channel.

Market Responsiveness and Track Record: Ability to respond, change direction, be flexible and achieve competitive success as opportunities develop, competitors act, customer needs evolve and market dynamics change. This criterion also considers the vendor's history of responsiveness.

Marketing Execution: The clarity, quality, creativity and efficacy of programs designed to deliver the organization's message to influence the market, promote the brand and business, increase awareness of the products, and establish a positive identification with the product/brand and organization in the minds of buyers. This "mind share" can be driven by a combination of publicity, promotional initiatives, thought leadership, word-of-mouth and sales activities.

Customer Experience: Relationships, products and services/programs that enable clients to be successful with the products evaluated. Specifically, this includes the ways customers receive technical support or account support. This can also include ancillary tools, customer support programs (and the quality thereof), availability of user groups, service-level agreements and so on.

Operations: The ability of the organization to meet its goals and commitments. Factors include the quality of the organizational structure, including skills, experiences, programs, systems and other vehicles that enable the organization to operate effectively and efficiently on an ongoing basis.

Completeness of Vision

Market Understanding: Ability of the vendor to understand buyers' wants and needs and to translate those into products and services. Vendors that show the highest degree of vision listen and understand buyers' wants and needs, and can shape or enhance those with their added vision.

Marketing Strategy: A clear, differentiated set of messages consistently communicated throughout the organization and externalized through the website, advertising, customer programs and positioning statements.

Sales Strategy: The strategy for selling products that uses the appropriate network of direct and indirect sales, marketing, service, and communication affiliates that extend the scope and depth of market reach, skills, expertise, technologies, services and the customer base.

Offering (Product) Strategy: The vendor's approach to product development and delivery that emphasizes differentiation, functionality, methodology and feature sets as they map to current and future requirements.

Business Model: The soundness and logic of the vendor's underlying business proposition.

Vertical/Industry Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of individual market segments, including vertical markets.

Innovation: Direct, related, complementary and synergistic layouts of resources, expertise or capital for investment, consolidation, defensive or pre-emptive purposes.

Geographic Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of geographies outside the "home" or native geography, either directly or through partners, channels and subsidiaries as appropriate for that geography and market.

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