



End-to-End Management in ICT Managed Services

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Abstract

The change of outsourcing business has transformed from the outsourcing of generic IT services to the outsourcing of specific IT services ? Information System Outsourcing. The basic need of the customer is to find an adaptable and comprehensive Information and Communication Technology (ICT) management solution. Customer's needs are normally not limited only in traditional IT area, but also mobile devices and connections should be included in the Managed Service solution. In an outsourcing scenario, the quality of day-to-day operations and management of communications services depend entirely on the service provider. Service Provider have to ensure end-to-end service is protected, all the elements must be included, physical protection to the core communications infrastructure, including network equipment, routers, switches, servers and so on, back-up power sources located in bunkers, virtually defense-level protection, have to be available to ensure uninterrupted network operation. There are only few Service providers who can provide real End-to-End service with a solid reputation built over several years. Real End-to-End Service Provider is fully committed to offer its customers higher quality, lower costs and faster service.

Keywords: End-to-End Management, Outsourcing, Information and Communication Technology, Service

Introduction

Outsourcing practices have been gaining importance among many organizations, especially organizations in ICT (information and communication technology) industry (McIvor 2000). Both businesses, from technological and

business process point of views, are fast evolving and definitions or business practices are still open to discussion. Information and communication technology industry and outsourcing businesses are thus often closely related topics. Today's one of the most interesting and increasingly growing business area is ICT outsourcing.

While there several different definitions to outsourcing, in information system context there is found three common components: "first an external provider takes over part or all of an organization IS functions; second, external provider should take the responsibility; and third, customers transfer IS functions to external provider as well as employee and part of computer facilities" (Yang and Huang, 2000).

Outsourcing decisions are often seen as a major determinant of profitability making a significant contribution to the financial health of the company. Though outsourcing is often perceived as a method of decreasing an organization's operating costs it offers also various strategic, technological and economic advantages to the organization which haven't been realized until now (Grover et al., 1996; Lankford and Parsa, 1999). Along with the change of seeing the whole potentiality of bringing value-added benefits, the vendor-supplier relationships in outsourcing business is also changing. The nature of the relationship has shifted from contractual relationship to a tightly integrated relationship, for mutual benefit of the vendor and outsourcing firm, as firms consider outsourcing a key strategic choice. (Grover et al., 1996; Lee and Kim, 1999; Lee et al., 2000)

Though outsourcing is experiencing significant spur at the moment it is not a new phenomenon. Outsourcing options have existed since the dawn of data processing. Activities such as software programming, the operation of large computers, timesharing and the purchasing of packaged software have to some extent been outsourced since the 1960's. However, in the 1990's outsourcing has changed dramatically, expanding to multiple systems and representing a significant transfer of assets and staff to Service Providers. (Beulen et al., 2000)

In the post-war period, managers were encouraged by many academics and consultants to conglomerate, horizontally integrate or vertically integrate. But, by the 1970's, however, it was becoming increasingly recognized that many of these large and diverse corporations were underperforming the market (Rumelt, 1974). When this underperformance became even more pronounced in the early 1980's with the onset of a global recession, a consensus emerged which suggested that corporate strategies should go into reverse and that firms should focus on fewer activities. The refrain grew up that firms should "stick to their knitting". (Lonslade and Cox, 2000) One of the key persons that has been behind the emergence of outsourcing industry was management guru Tom Peters in the 1980's. He suggested that firms should focus on their core business (Peters and Waterman, 1982). The change in thinking organization boundaries and process is best presented in Figure 1.

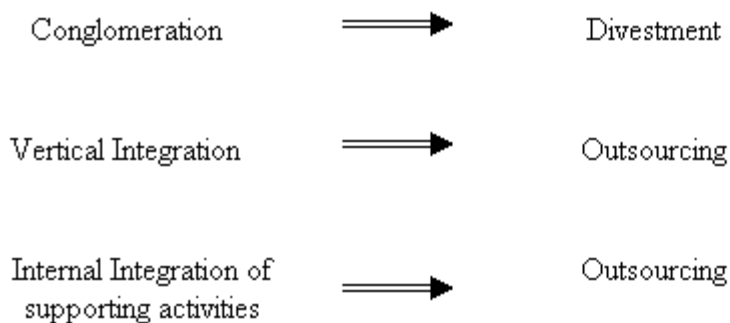


Figure 1. The effect of "core" ideas on existing business practices

Nowadays, one of the reasons why firms are outsourcing a number of their primary supply chain activities is that the costs of remaining up to date in a multitude of supply chain activities has become financially onerous. Where technology moves the fastest, the problem is the most serious. One of the fastest developing industries is the ICT industry. Especially during the 1990's the industry experienced fast growth which is illustrated in the Figure 2. It is therefore not be a surprise to learn, that a number of the pioneering outsourcers have been in the IT and ICT

sectors. (Lonsdale and Cox, 2000)

When speaking of ICT industry, the high development of the industry is well illustrated by the fact that, at the moment, there is no international agreement or recommendation about the definition of ICT products. Eurostat has drawn up a preliminary list of products. The product group categories are telecommunications equipment, consumer electronics, computers, electronic components, office machinery, instruments and equipment for detecting, measuring, checking and controlling physical phenomena or processes. (EITO, 2004)

Western European IT and TLC markets annual growth 1995-2005, in %

Figure 2. Growth of ICT and Telecommunication industries during 1995 and 2005 (EITO, 2004).

Theoretical background

The outsourcing landscape has changed dramatically over time. The IT services market has undergone many changes in the last 30 years. In the 1960's outsourcing started through the outsourcing of data centers. Especially companies that categorized IT services as non-core business were outsourcing their IT services to service providers. After the start of the outsourcing business, the scope of outsourcing expanded to activities such as software programming, the operation of large computers, timesharing and purchasing of packaged software. During 1970's to 1980's the outsourcing market consisted of three distinct types of IT service provider: 1) hardware suppliers, 2) systems houses supplying and developing software and 3) IT consultancies (Mitchell and Fitzgerald, 1998).

The 1990's witnessed the growth and maturing of the IT outsourcing market (Sauners et al., 1997). In the late 1980's and early 1990's, senior executives sought ways to leverage outsourcing to control and shape IT costs in conjunction with changing business requirements. Cost savings were often at the root of many outsourcing deals (Takac, 1994). Conversely, many chief information officers and IT directors resisted outsourcing initiatives which they interpreted to be against their interests. And many of these IT departments were outsourced, as external suppliers often won contracts by their effective marketing through presentations to senior executives, many of whom had little knowledge, understand and experience of IT (Currie, 1996).

The change of outsourcing business has therefore transformed from the outsourcing of generic IT services to the outsourcing of specific IT services ? Information System Outsourcing. And today not only IT services are outsourced, but business processes are as well, known as Business Process Outsourcing. In fact, when looking at the outsourcing field today, three main outsourcing types can be found: Information System Outsourcing, Offshore Outsourcing, and Business Process Outsourcing (Figure 3).

Degree of risk in outsourcing partnership

When inspecting today's outsourcing markets two main outsourcing types can be located: Information System Outsourcing, Business Process Outsourcing. In addition to these outsourcing models there are multiple outsourcing methods which fall under between of these two. For example, commodity services such as desktop and helpdesk, network processing and server management are largely always outsourced. Specific services such as application management are also outsourced and both these commodity services and the specific services are defined as Information Systems Outsourcing (The scope of Information Systems Outsourcing is limited to the outsourcing of IT services to service providers).

On the other hand BPO (business process outsourcing) involves not only IT services, but includes the responsibility for the execution of the service recipient's business processes. The business processes involved in outsourcing are heavily based on IT services ? so called IT centric services. In BPO two types can be identified: supportive and core BPO. Supportive BPO started slowly in the 1980's with payroll services and has become more mature in the 1990's. Supportive BPO is provided on a one-to-one basis and therefore highly customized. Where as, core BPO has really only recently been adopted by companies. In this type of BPO there are provided multiple services recipients on a less customized basis. An example of core BPO is the billing processes for Telecommunication companies. The current focus of BPO is on back office processes such as human resource administration and payment services.

Some other outsourcing types that can be located in addition to the mentioned methods are offshore outsourcing and managed hosting. In offshore outsourcing global service providers have established service centers in different time zones to provide cost effective services using the 365x24 ?follow the sun? concept. In this type of outsourcing the service providers can use the low wage countries for application development and application management and second line support for infrastructure management services. And by having these service centers in low cost countries with a large supply of skilled employees, service providers are able to provide services even more cost effectively (The more experience service providers and the service recipients have with offshore outsourcing, the more they can leverage the advantages of offshore outsourcing). (DCITA, 2001)

While the business of managed services focuses on helping companies to take advantage of simple to complex hosting solutions without dealing with the day-to-day hassles of server management and system administration. The key drivers behind the managed services business are reduction of operating costs (e.g. reduction of staff),

consolidation of resources (e.g. data storage, server farms, facilities maintenance), and streamlining of processes (security, business continuity, aided by consolidation). The managed service model is higher value services, it provides to managed service customers clear added value in terms of aforementioned drivers. (Anderson, 2004)

During the mid-1990s companies turned increasingly to outsourcing as a panacea to manage the dilemma of maintaining existing systems and applications and introducing new ones at only a marginal increased cost. In today's IT sourcing contracts are varied but generally fall into four distinct categories: total outsourcing; selective (multiple contract) sourcing; joint venture / strategic alliance sourcing; and insourcing (buying-in services) (Currie and Willcocks, 1998). And when glancing the ICT outsourcing services six categories can be found: i) consultancies/service providers, ii) hardware vendors, iii) system houses, iv) generic outsourcers, v) niche player consultancies, and vi) niche player IT suppliers (Currie, 2000).

Value-added outsourcing services

As more companies entered into outsourcing arrangements, they often found external suppliers offered additional value-added services in the form of improved quality of service, more flexible and responsive design and implementation of IT infrastructures and systems, faster access to properly skilled technical staff, better alternative schemes for using technology to improve business functions, and far fewer difficulties in managing organizational and internal political issues (Quinn and Hilmer, 1994).

According to McCarthy (1996), in 1990's, the primary reasons why a firm considers outsourcing are following: 1) outsourcing allows companies to refocus their resources on their core business; 2) corporations can buy technology from a vendor that would be too expensive for them to replicate internally; 3) outsourcing lets companies re-examine their benefit plans, make them more efficient, and save time and money while improving efficiencies; 4) companies outsource to improve the benefit plan service level to their employees by making the information more consistent and more available; and 5) a final possible reason is to reduce costs certainly over the longer term.

The findings of McCarthy (1996) are further supported by the study of Pricewaterhouse Coopers. According to their study three market drivers behind outsourcing was found. Of the decision makers, 87 percent said that outsourcing allowed management to focus upon its core competencies, 76 percent said that BPO (business process outsourcing) fostered greater efficiency within the organization, and 66 percent said BPO would make the company more profitable. And to meet the clients' requirements, the traditional hardware suppliers like IBM, HP, DEC, Siemens, ICL, Unisys and AT&T have all widened their outsourcing portfolios,

often through mergers, acquisitions, strategic alliances and joint ventures. And similarly, systems houses are now more likely to seek long term business with their clients by offering additional outsourcing services. The generic outsourcing companies are also attempting to do the same. But systems houses and generic outsourcers are often inhibited by their limited size and service portfolios. (Currie, 2000)

Thus, business practitioners and academicians are starting to see outsourcing from value-added rather than cost reduction perspective. And today's the most frequent objective for outsourcing activities is mentioned to be improving service speed and service quality. Because of shift in the outsourcing objectives the different outsourcing types are now depicted based on the added value they bring to clients. In the Figure 4 the outsourcing types are rated from value-added aspect - moving up the stages, outsourcing increases its value. At the apex, organizations use outsourcing to fundamentally reshape they carry out their missions and to achieve notable results in an accelerated time frame. A business transformation outsourcing initiative offers the greatest opportunities for radical improvement because it involves rethinking critical management processes.

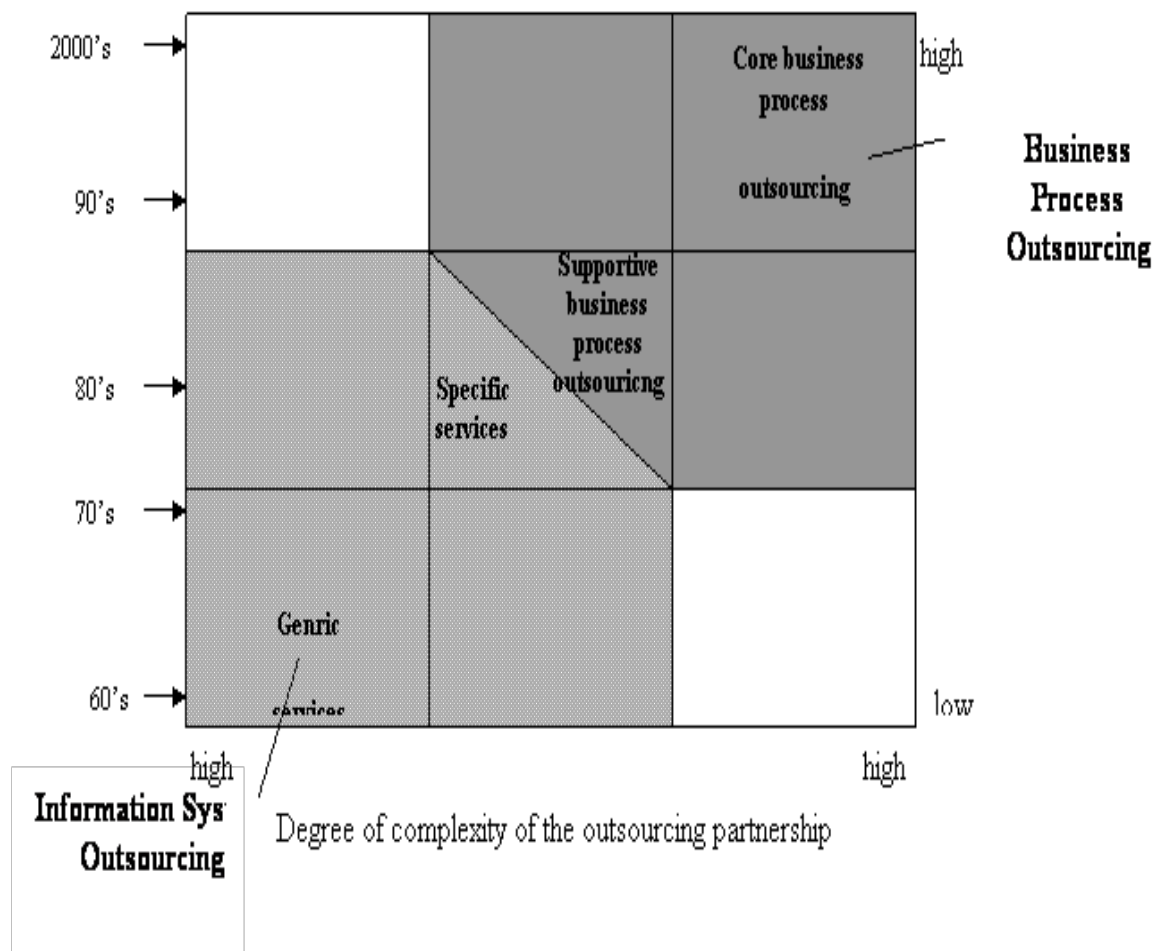


Figure 3. Partnership maturity model for Outsourcing Relationship (Beulen et al., 2000)

In order to provide these IT centric services effectively, service providers need to have in-depth knowledge of the specific business processes involved. In general, BPO requires more investment by the service provider and more business knowledge than information systems outsourcing. The focus is on functionality and BPO is linked to specific applications in order to offer the required functionality. This means that application maintenance capabilities are crucial for BPO service providers.

One of the main areas in which outsourcing services are seen to bring most distinctive value for clients is mergers and acquisitions. Outsourcing helps mergers and acquisitions where the supplier assists the merging institution to reach the new market quickly. A large outsourcing supplier can spend a couple of years with the client in managing the change process. Once an acquisition has been finalized, the acquiring company has to run on two IT infrastructures, which include two IT data centres, networks, helpdesks, check processing systems and two sets of system engineers. The company's ultimate goal is to merge these two infrastructures into one integrated unit. A supplier can relieve the company of the duality of the fixed cost infrastructure that the financial institution has integrated and turn it into a variable rate services. So the supplier becomes very involved in the company's change process since it manages the transformations. The advantage of a supplier taking up a short-term contract is that the company does not inherit large additional costs. Instead, the supplier will take the risk and put the cost on its books. This outsourcing model mitigates the company's risks by taking away any responsibility the company would have of disposing of unneeded assets after the overall conversion is finalized. The extra assets after the hardware, software, and people may not be as valuable to the company as they are to a supplier because they can deploy them to satisfy the requirements of other customers. Mergers and acquisition have now become an effective means of dealing with fierce competition, global expansion efforts, industry change, diversification, cutting costs, eliminating ineffective management and increasing product and technological range. Over the last ten years, outsourcing has played a critical role in merger and acquisition activities. Moreover, outsourcing can be a key

element in increasing the chances of success for the new entity. The integration of staff and IT systems are pivotal areas where mergers often fail. Outsourcing may excel as business tool to accomplish integration and efficiency in these areas (Bender-Samuel, 2000)

Customer's expectations for managed service's provider

The basic need of the customer is to find an adaptable and comprehensive Information and Communication Technology (ICT) management solution. The solution that forms a solid and secure ground to build up, deliver and run customer systems and applications. Managed Service solution should include uniform monitoring, security, support and maintenance covering networks and servers up to the terminals. This means also a single point of contact and consistent service level management for the customer. Like mentioned earlier, cost control is one of the key drivers when selecting managed service provider. Normal way gain this benefit is by harmonizing customer's information and communication infrastructure to production environment that service provider is running. That increases the cost-efficiency.

Continuous development of the services is of the key selection criteria's for service provider. In order to guarantee the suitability and adequacy of the solution over time continuous development of customer solution should also be included in the service, based on the changing business requirements or the advances and improvements in technology. The customer have to get, in addition to a controlled and operative comprehensive solution, a secure and flexible roadmap for utilization of latest technologies without sacrificing any previous investments made for the older technologies.

Service provider should also have wide enough service portfolio. Customer's needs are normally not limited only to traditional IT area, but also mobile devices and connections should be included in the Managed Service solution. This enables mobile, flexible and secure access to systems and applications from different kind of mobile devices. Consistent Managed Service offering opens up better controllability, usability, flexibility and reliability for deployment of business systems and applications.

End-to-end management in ICT outsourcing

More often service providers talk about end-to-end services. When selecting outsourcing services, some enterprises prefer to "carve out" specific communications services, such as telephony, security, WAN networks or IT support. Others choose to hand over complete responsibility for the operation and management of their entire communications needs. Known as end-to-end management, this is an increasingly popular outsourcing option. In this case, the outsourcing supplier "owns" the entire communications process from desktop to desktop, or from desktop to service, and delivers all communications needs, including equipment and support that ensure a cost-effective and reliable service standard that meets the requirements of the customers service level agreement (SLA). Choosing the right end-to-end management partner allows enterprises to focus their efforts on their core business, letting their outsourcing partner handle the complex and multi-layered task of network provisioning. The benefits are obvious, natural is to choose an end-to-end supplier who can provide high quality services level for all customers communications services at a cost, quality and security difficult if not impossible to attain by in-house operation.

Figure 5. Technical layers in End-to-End service

Most of the managed service providers has develop their services to direction of end-to-end supplier, instead of delivering independent services like server hosting. By utilizing the customer's existing datacom, telephony and IP platforms, including equipment, supplier and license agreements and so on, service providers can protect an enterprise's past investments and keep costs down. As a provider to numerous small to large enterprises that demand the most current communications solutions, service provider must always be up-to-speed on the latest industry software applications and functionality, enabling customers to stay ahead of the competition. Service providers have to help customers migrate their solutions to an end-to-end management solution to next-generation solutions that meet the customer's needs in terms of functionality, capacity, service support and scalability, today and in the future.

Figure 6. Key elements of End-to-End Services in ICT

Control and customer support

Operational routines of service provider should be one of most important criteria's when selecting provider. In an outsourcing scenario, the quality of day-to-day operations and management of communications services depend entirely on the service provider. Management and performance reports, which are measured against SLAs, are key to maintaining quality services. Normally service provider manages several enterprise networks simultaneously, and it can be expected that service provider can provide customers with a quality of service than by any in-house operation. Since service provider is also responsible for providing multiple customers with the latest in industry-standard solutions, customers can also be assured they are getting the best and the latest from a fast-changing commodity market. Operational management of end-to-end services also includes the ability to identify trends and identify capacity problems before they occur. For example, an end-user should not face any slow down in datacom speeds due to an increase in the number of users on a specific line. Or when a customer is expanding and connecting newly opened branches in geographically dispersed locations, capacity upgrades are delivered in keeping with the SLA.

With expertise in all the major IP, datacom and telephony standards, including Microsoft, Sun and Cisco, among others, service providers engineers and technicians should take over an enterprise's upgrading and performance measurement tasks to ensure they meet the requirements of the SLA. In the event of end-user problems, remote supervision is initiated, ensuring the problem should be solved in a timely manner.

It is also expected that Service Provider have Network Operation Centers (NOC), in the area where service provided, to be able to track enterprise network activity 24 hours a day, 365 days a year, ensuring that customers operations function minimal if any reduction in service quality.

Service administration and maintenance

Like in principles of TQM (total quality management) administration and documentation of the service provides service plays key role. Ensuring that all end-users are equipped with the latest software versions and hardware is crucial to the success of service provider's end-to-end management services. Using SPOC, end-users can order new or change existing services and functionality in a fast, simple and effective way. Each end-user is registered always in Service providers administration system. Each repair, upgrade, change-out and so on in a workstation, server, or switchboard must be documented, making it much easier and more efficient to keep track and follow-up if a problem occurs or an upgrade is needed.

Documentation procedures apply not only to standard PC upgrades (for example, from Windows 95 to Windows 2000), to complete change-outs from mainframe to server-based networks. Each piece of equipment in the communications chain--PCs, servers, cables, printers, and so on--must be documented and kept track of for future upgrades.

Service providers documentation and administration procedures are one of the principle ways to maximize the availability of services and to ensure traffic, services and access should never been compromised in any way. For the enterprise, the advantages are clear: increased productivity by their end-users and reduced overall communications costs.

It also important that service provider develops it's service continuously. Even though the main objectives of the contract is to save costs and run operations , service provider have to ensure that the customer's communication network and provide services evolves to meet emerging needs, service provider has to have the resources to ensure customers their current and future needs will be met in a cost-efficient way. These needs include the integration of the latest developments in all of the customers' communications platforms?telephony, data and IT. Like mentioned earlier technologies constantly change, creating opportunities for enterprises to improve end-to-end service levels, end-user functionality and productivity. But staying abreast of all these developments is complex and time-consuming. Service Providers new products and applications must be thoroughly tested, designed and administered

to ensure they meet security standards and service level agreements. That's why outsourcing service and product development is ideally handed over to the outsourcing partner.

Service providers have hundreds of products and they develop new ones continuously. New products have to be thoroughly tested in a formal risk-analysis process. This process is normally built on worst-case scenario formulations in which various threats are analyzed for their probability. The level of probability is analyzed (very likely, moderately likely, not likely and so on), and the consequences of each possible outcome are further examined. If a decision is made to use a product with a likely threat, for example, service provider have to make appropriate alterations in the product to ensure any potential threat is eliminated.

As part of the service, service provider has to take responsibility for the convergence of the customers' platforms, regardless of the platform or the vendor supplying it, wherever the technology allows it. Service provider's responsibility includes the seamless integration of all the customer's networks on a common platform so that the end-user can connect regardless of equipment or physical location. Service provider has to be willing to remove the traditional barriers between telephony and data, fixed and mobile, circuit-switched and data packet to ensure the full accessibility, flexibility, satisfaction and productivity of end-users.

Single Point of Contact (SPOC)

Nowadays almost all the biggest service providers are able to provide Single Point of Contact (SPOC) when needed. It must be easy for the end-user to get support and service. To ensure that customers and their end-users enjoy maximum uptime and no hassle, all problem resolution regarding fixed and mobile telephones, desktops, server networks, and so on, must be handled by a Single Point of Contact in service provider's organization. Any end-user problem, from hardware malfunction, login problems, PC connectivity, ordering a new PC, and related issues, can be handled by SPOC. Based on the cornerstones of accessibility, user support, order follow-up and customer information, SPOC is a kind of all-purpose end-user portal where problems can be easily and quickly addressed via the web, telephone, email, fax and so on. Every contact a customer makes with SPOC should be logged into the system so that problem solving is most efficient.

Service provider have to keep their customers informed of any changes to network services in a timely manner. If, for example, service provider has scheduled any network upgrades that might disrupt work flow, service provider have to alert customer's well before the project has begun. Such activities, when necessary, are carried out during low-peak periods when end-users are least likely using services. Behind the scenes, End to End service provider has to have effective Network Operation Center (NOC), a highly sophisticated supervisory management system to stay ahead of potential problems. NOC's advanced network management and fault detection programs help to identify and address problems before they occur. Service providers use often remote management tools to resolve problems, ensuring fast and cost-effective problem resolution. Actually major part of all faults are solved by remote management. Requiring fewer in-house technical support means additional savings to the customer.

Security

Without security knowledge and competences, it is not possible to act as a service provider or enabler/partner to any market in this industry. Security competence is essential part of future ICT service providers operations in any market and security will be more and more strategic competence in these operations. A good security approach in the security business helps when service provider want to deliver higher value added services, where for example authentication is one essential part of security portfolio. Whether it's centralized patch management or end-to-end encryption in a Virtual Private Network (VPN), service provider have to able to manage security. Security is complex in it's nature and with the high evolution of new Services and integrated solutions the provider has to be highly skilled and trustworthy. Many customer enterprises name security as the number one concern.

The physical security of a premises, security clearance, as well as network security, virus protection, patch management, personal firewalls, risk analysis and awareness, incident reporting and organizational procedures are all priority issues. In today's fast-paced and highly competitive environment, businesses can suffer serious consequences if email is unavailable or the network unexpectedly goes down. Service providers have really focus

to Security services and actually this is a big challenge especially to smaller service providers who do not own? whole end-to-end chain. Security approach have to be implemented everyone who works in Service providers organization. It's not enough if it's only limited to few hundred security experts.

For example in remote upgrades, the end-user has the option to give access to service provider to his or her workstation, allowing service provider to take over the desktop and perform upgrades, virus scanning and other services. In such cases, the end user is normally advised to close personal and classified documents to ensure privacy. Often service providers use standard software and operating systems such as Microsoft. Because it is an industry standard, Microsoft is a frequent target of viruses. Consequently, to stay ahead of hackers, Microsoft must be quick to develop security patches. These patches can be centrally administered by the Service Provider, which can perform the software upgrade on a remote basis. It's also expected that service provider provides help desk support to end-users 24 hours a day.

To manage the security during whole end-to-end chain is a huge responsibility to Service Provider. Service Provider have to ensure end-to-end service is protected, All the elements must be included, physical protection to the core communications infrastructure, including network equipment, routers, switches, servers and so on, Back-up power sources located in bunkers, virtually defense-level protection, have to be available to ensure uninterrupted network operation. Service Providers provides a number of measures. These include alarms for break-ins, fire, explosions and water. The number of personnel allowed into secure areas are normally limited and given various degrees of clearance. Personnel are given various levels of security clearance, depending on their duties. Follow-up is essential to ensuring security.

Service Level Agreements (SLA)

Overall SLA plays big role when offering end-to-end management. As mentioned earlier in end-to-end service the customer effectively out-sources the entire SLA chain, covering everything from the desktop to the cables, routers, switches and other components, to product development and services that ensure secure, effective and fault-free operations. Since Service provider owns? the customer's entire communications process, provider is legally bound to fulfilling all the Quality of Service levels specified by the agreement. It's normal that Service Provide as part of the agreements is committed to provide the best available products and services that minimize service and maintenance costs for customers. This type of commitment to quality is naturally reflected in product development of service provider.

Only few real End-to-End service providers at the market

There are only few Service providers who can provide real End-to-End service with a solid reputation built over several years. Comprehensive end-to-end management services for small, medium and large corporations throughout the region requires basically own network from the Service Provider. Can be said that If you customer is interested in one or two specialty services, such as WAN or IP telephony, the list of potential suppliers is long. However, if customer is looking for a supplier that can deliver it all end-to-end, the list is much shorter. Few suppliers have the breadth and depth of experience or knowledge are delivering total solutions that ensure end-user uptime and satisfaction, reduce customers overall communications costs and increase effectiveness in an environment with the highest possible level of security and Quality of Service. Most of the Service providers who call them self's as end-to-end service provider's actually build up their end-to-end solution with several partners and subcontractors, but the most experience ones does have unique position of producing most of the solutions in-house, requiring few if any partners. Real End-to-End Service Provider is fully committed to offer it's customers higher quality, lower costs and faster service.

References

- Anderson, D. (2004), 'The Strategic Importance of Managed Services?', Dimension Data, United Kingdom.
- Bender-Samuel, P. (1999) 'A fork in the road for ASPs'. Outsourcing-Journal.com/issues/apr2000.

- Beulen, E., Baas, R., Dain, J., Hudson, J., Reitsma, E., Symonds, M. & van der Zee, H. (2000). Outsourcing: The Atos origin outsourcing lifecycle ? building succesful outsourcing relationships, White paper, Atos Origin.
- Currie, W. & Willcocks, L.P. (1998). Analysing four types of IT outsourcing decisions in the context of size, client/supplier interdependency and risk mitigation, *Information Systems Journal*, Vol. 8, pp. 119-143.
- Currie, W. (2004), ?Value creation from the application service provider e-business model: the experience of four firms?, *The Journal of Enterprise Information Management*, Vol 17, No. 2, pp. 117-130.
- CURRIE, W.L. (2000). The Supply-side of IT outsourcing: the trend towards mergers, acquisitions and joint ventures, *International Journal of Physical Distribution & Logistics Management*, Special Issue on Supporting Supply Chain Management Through an IT/IS Infrastructure, Vol, 30, No. 3/4, pp. 238-254.
- DCITA (2001). IT outsourcing and ICT industry development framework, Information and Communications Technology, Australian Government. Available online at http://www.dcita.gov.au/Article/0,,0_1-2_1-4_15782-LIVE_1,00.html, last visited September 2004.
- EITO (2004). European Information Technology Observatory. Available online at
- Grover, V., Cheon, M.J. & Teng, J.T. (1996). The effect of service quality and partnership on the outsourcing of informations systems function, *The Journal of Management of Information Systems*, Vol. 12, No. 4, pp. 89-116.
- <http://www.eito.com/download/EITO%202004%20presentation%20Brussels%2019.02.04.%20Lamborghini.pdf>, last visited September 2004.
- Lankford, W.M. & Parsa, F. (1999). Outsourcing: a primer, *Management Decision*, Vol. 37, No. 4.
- Lee, J. & Kim, Y. (1999). Effect of partnership quality on IS outsourcing: Conceptual framework and empirical validation, *Journal of Management Information Systems*, Vol. 15, No. 4, pp. 551-5565.
- Lee, J., Huynh, M.W., Chi-wai, K.R. & Pi, S. (2000). The evolution of outsourcing research: What is the next issue?, *Proceedings of the 33rd Hawaii International Conference on System Sciences*.
- Lonslade, C. & Cox, A. (2000). The historical development of outsourcing: the latest fad?, *Industrial Management & Data Systems*, Vol. 100, No. 9, pp. 444-450.
- McCarthy, E. (1996). To outsource or no to outsource ? what's right for you?, *Pension Management*, Vol. 32. No. 4, pp. 12-17.
- McIvor, R. (2000). A practical framework for understanding the outsourcing process, *Supply Chain Management*, Vol. 5, No. 1, pp. 22-36.
- Mitchell, V. & Fitzgerald, G. (1998). The IT outsourcing marketplace: vendors and their selection, *Journal of Information Technology*, Vol. 12, pp. 222-237.
- Peters, T., Waterman, R. (1982). *In Search of Excellence*, New York, London: Harper & Row.
- Quinn, J.B. & Hilmer, F.G. (1994). Strategic outsourcing, *Sloan Management Review*, summer, pp. 43-55.
- Rumelt, R.P. (1974). *Strategy, Structure, and Economic performance*. Cambridge: Harvard University Press.
- Saunders, C., Gebelt, M. & Hu, Q. (1997). Achieving success in information systems outsourcing, *California Managment Review*, Vol. 39, No. 2, pp. 139-155.
- Takac, P.F. (1994). Outsourcing: a key to controlling escalating IT costs?, *International Journal of Technology Management*, Vol. 9, No. 2, pp. 139-155.

Yang, C. & Huang, J. (2000). A decision model for IS outsourcing, *International Journal of Information Management*, Vol 20, no. 3, pp. 225-239.