



# OSS TRANSFORMATION: A FUNDAMENTALLY DIFFERENT APPROACH

CONTENTS

1. INTRODUCTION	1
2. NETWORK TRANSFORMATION NEEDS OSS TRANSFORMATION	2
3. MAKING THE STRATEGIC TACTICAL: GETTING TO NEXT-GENERATION OSS	4
4. THE FIVE FLAVORS OF OSS TRANSFORMATION	5
5. A FIRM FOUNDATION FOR NEXT-GENERATION OSS	10
6. CRAMER, AMDOCS OSS DIVISION: MARKET-LEADING OSS	12

# 1. INTRODUCTION

## 1.1 COMMUNICATIONS IN TRANSITION: AN INDUSTRY SNAPSHOT

The communications industry is undergoing profound redefinition, driven by consolidation, competition, convergence and customers' increasing demand for convenience. Whether starting in wireline, mobile or cable, the goal is to offer innovative service bundles in an endless variety, from traditional voice to Internet, wireless, video, games, music, ring tones and other content.

The convergent service market is set to experience explosive growth. IPTV will serve 53.7 million users worldwide by 2008, according to market research firm Infonetics. The North American VoIP market will grow 800% to 39 million users by 2009. Already, Verizon Wireless reports that more than 40% of its revenue is generated by "data" services like games and music.

## 1.2 THE NEXT-GENERATION SERVICES MARKET IS HEATING UP

In the United States, Verizon and AT&T have begun offering "triple play" services to fend off cable competition. Cable leaders Cox, Comcast and Time Warner have teamed with Sprint to offer "quadruple play" services. In country after country, service providers are building new convergent service portfolios and swapping assets to gain market advantage. In the UK, BT is expanding beyond basic telecom with BT Vision video, competing with cable and broadcast operators including the BBC.

Keeping the pressure on, French startup Iliad Communications offers unlimited calling in-country and to 14 other nations, plus high-speed Internet and 81 cable TV channels for \$36 per month. Companies like ESPN and Disney have entered the wireless market as mobile virtual network operators (MVNOs), reselling wholesale capacity under their own brand.

The clear winner is the customer, who benefits from a continuously evolving array of services kept affordable by competition.

Providers looking to convergent services for new revenue streams should look to France's Iliad, which prices well below the incumbent and, for comparison's sake, at nearly two-thirds less than the least expensive comparable package in the U.S., according to *The Wall Street Journal*. Iliad saw a 50% increase in its customer base in 2005, up to nearly 1.6 million users. Customers want convergence, but only if the price is right. Operators must invest in new technologies while keeping costs in line to ensure an affordable package.

## 2. NETWORK TRANSFORMATION NEEDS OSS TRANSFORMATION

### 2.1 RECOGNIZING THE PROBLEM

Next-generation networks have arrived and are here to stay. AT&T U-verse and Verizon FiOS are a reality. KPN All IP and BT 21CN are just around the corner.

Infrastructure development has been the driving force behind network and service initiatives in fixed-mobile convergence, NGN, SDP and IMS. However, many providers are realizing that most existing operational support systems (OSS) are obstacles to change. Where focus has been firmly centered on next-generation initiatives, it's becoming clear that associated issues are better dealt with upfront through OSS. Service providers are addressing these issues through OSS transformation projects as large and complex as network transformation.

### 2.2 WHAT IS OSS TRANSFORMATION?

Operators typically have hundreds or even thousands of existing systems, often custom-built, that each perform a specific function. When we talk about OSS transformation, we are talking about a massively scaled project to reform the vast, costly operational support systems infrastructure. The aim is twofold:

- > To create a platform that is integrated, cohesive and enterprise-wide, enabling operators to create and deliver a vast range of high-volume services without needing to introduce new systems for every new service. With ARPU in decline, operators need new sources of revenue – and a means of supporting their rapid introduction, fulfillment and assurance.
- > To reform the systems estate. New services are the key to new revenues, but they cannot be sustainably introduced and run as in the past. Today's new services are only profitable *en masse*. Each by itself is low-margin, and can only be profitable if delivered from a low-cost base – requiring a fundamentally different approach to operations support.

## 2. NETWORK TRANSFORMATION NEEDS OSS TRANSFORMATION (CONT.)

### 2.3 THE ISSUE

How can operators address the tactical need to roll out new services quickly, while embracing a fundamentally different operations approach that meets long-term strategic goals? Simultaneously, operators must:

- > Introduce new services quickly that show significant ROI.
- > Build a network and systems infrastructure that enables rapid creation and delivery of multiple high-volume, low-margin services.
- > Reform their existing systems estate to reduce operating cost.

However, when rolling out VoIP, IPTV and other new services, operators are finding it difficult to satisfy both tactical needs and long-term goals. The choice is often made to purpose-build or install support systems as yet another silo since, in the short term, it's a quicker and cheaper approach.

As long as ROI is measured on the basis of each individual project rather than across the board, operations will be under pressure to behave tactically rather than investing in a fundamentally different support infrastructure. Lessons have been learned from other industries. A well-known bank, for example, slipped from first to last in its market when it stopped developing new products and focused instead on building a platform to deliver 'plug and play' products. Strategically, this was the right move and ultimately paid dividends. But tactically, it very nearly cost them their existence before the dividends came.

### 2.4 REQUIREMENTS FOR NEXT-GENERATION OSS

Operators have two main OSS transformation requirements:

- > Simultaneously meet tactical requirements and the strategic need for a next-generation OSS platform.
- > Ultimately, deliver a firm foundation for next-generation OSS with an architecture that is modular, extensible and scalable for future needs.

## 3. MAKING THE STRATEGIC TACTICAL: GETTING TO NEXT-GENERATION OSS

### 3.1 THE IDEAL OSS

Next-generation networks let operators combine IT-based services and deliver them over an IP network capable of supporting multiple classes of service. It's the ultimate flexible network – configurable at every point.

Operational support systems must address this new configuration. The OSS platform must be able to manage a complex mix of “best effort”-type services and highly engineered services like IPTV, which require careful management to ensure correct operation.

OSS must be able to meet the demand for different services, delivering intentionally differentiated Quality of Service.

It must be able to parameterize the services and the network and allow them to be reused. This reuse is critical to fast product introduction.

The overriding challenge is to enable all services to operate simultaneously with minimal disruption. This is not easy and requires full OSS automation of any self-provisioned service fulfillment.

Immediate customer and service impacts must also be available when a network failure occurs. Proactive detection and resolution of service configuration errors is mandatory in the new network model.

### 3.2 GETTING THERE – THE FIVE FLAVORS OF OSS TRANSFORMATION

Each flavor of OSS transformation (OSS-T) has distinct challenges. The end result may be the same, but making the right choices to support the path you take can make the difference between success and failure.

The five flavors of OSS-T are:

1. Complete BSS and OSS transformation
2. Complete OSS transformation
3. Service transformation
4. Process consolidation
5. Inventory consolidation

# THE FIVE FLAVORS OF OSS TRANSFORMATION

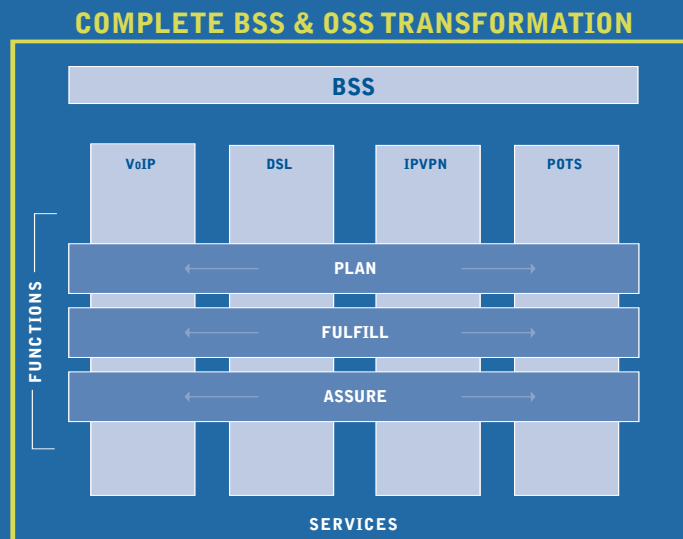
## 4.1 COMPLETE BSS AND OSS TRANSFORMATION

Only a few of the world's largest operators can justify this full-scale, multi-year project. It is necessary when the existing systems estate is an impediment to efficient business operations. In parallel, there will be a massive rationalization of the myriad BSS and OSS software systems used to control the network.

Only the most scalable, robust and complete suites can do the job. There are but a handful of vendors with both BSS and OSS in their portfolio – and even fewer with the ability to deliver a coherent, unified approach to the overall BSS-OSS architecture.

### @ TELSTRA MINI-CASE

Telstra has more than ten million fixed line and eight million mobile customers. The company is currently executing a strategy to transform and simplify all operations across its business. Amdocs' solutions, including the unique new Amdocs Service Management Suite and Cramer6 OSS Suite, were selected by Telstra to reduce complexity and costs associated with bringing new IP-based services to its wireline, wireless and broadband customers.



# THE FIVE FLAVORS OF OSS TRANSFORMATION (CONT).

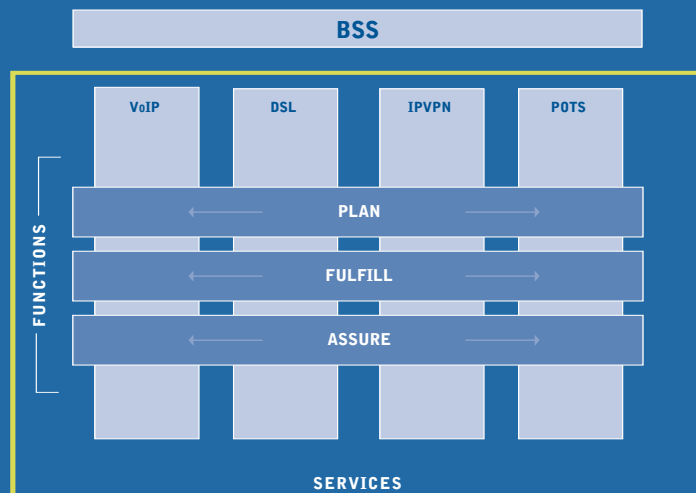
## 4.2 COMPLETE OSS TRANSFORMATION

This is a total replacement of all back office operational systems for planning, fulfillment and assurance. Like all full-scale projects, a complete OSS transformation requires a scalable, robust and complete suite. Greater integration capability is needed for possible interoperability with a variety of existing BSS systems. Adherence to standards, in particular SOA and MTOSI, provides a route to integration. But just as important is proven delivered integration and a productized approach to building integration via “adapters” that can be managed as part of the suite for lower TCO.

### @ TDC MINI-CASE

TDC is Denmark’s incumbent telecoms operator and the second-largest provider in Switzerland, offering a range of fixed line, mobile, Internet, cable TV and wholesale services. TDC’s goal is to lead the market in next-generation services and simultaneously reduce costs. To achieve this, TDC is building a complete operations platform to replace its existing legacy OSS. The new platform will support its vision, and provide flexibility for growth and adaptation in response to changes in technology and market demand. Cramer software is being used as the foundation, enabling automation of flow-through fulfillment across access and transmission networks.

## COMPLETE OSS TRANSFORMATION



# THE FIVE FLAVORS OF OSS TRANSFORMATION (CONT).

## 4.3 SERVICE TRANSFORMATION

The third option is to introduce an OSS for a new service across all operational functions – in effect, a vertical integrated stack of process-driven products to, for example, automate DSL fulfillment.

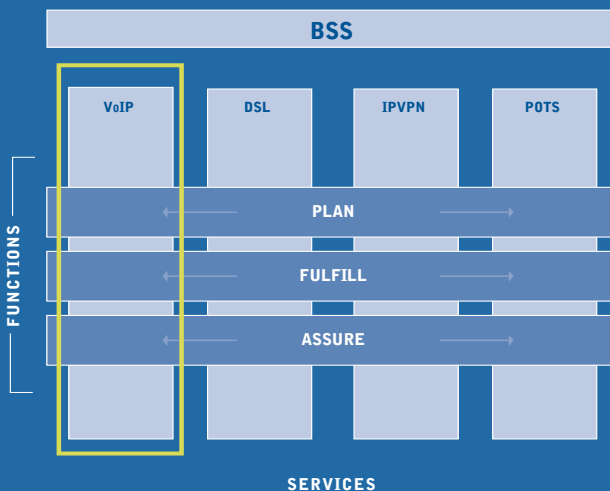
Done properly, the introduction of a new service can be used as a mechanism to introduce a new OSS architecture that can later be used as the target architecture for complete OSS transformation – expanding scope as new services are added, thus enabling the operator to meet tactical and strategic objectives simultaneously in an evolutionary way. This approach is preferred by newer operators who have less of an issue with legacy systems.

The danger here is that OSS software that is highly targeted to delivering a service, such as DSL, is not suitable for delivering additional services. Moreover, a package highly configured for a single service is also often constrained to deliver one process only, such as fulfillment, and is not suitable for use as the basis for all operational processes. This software then becomes a vehicle for the proliferation of further OSS fragmentation rather than a consolidating force.

### @ TELEKOM AUSTRIA MINI-CASE

Like most service providers, Austria's largest operator is evaluating and reforming its existing OSS estate, but in the short term needs to launch next-generation services quickly. As the first step in OSS transformation, Telekom Austria will deploy an integrated end-to-end fulfillment solution using Cramer6 OSS Suite and Alcatel as the prime integrator. The solution will be operational across the company later this year. This joint solution will automate fulfillment of all services, including "triple play" bundles.

## SERVICE TRANSFORMATION



## 4. THE FIVE FLAVORS OF OSS TRANSFORMATION (CONT.)

### 4.4 PROCESS CONSOLIDATION

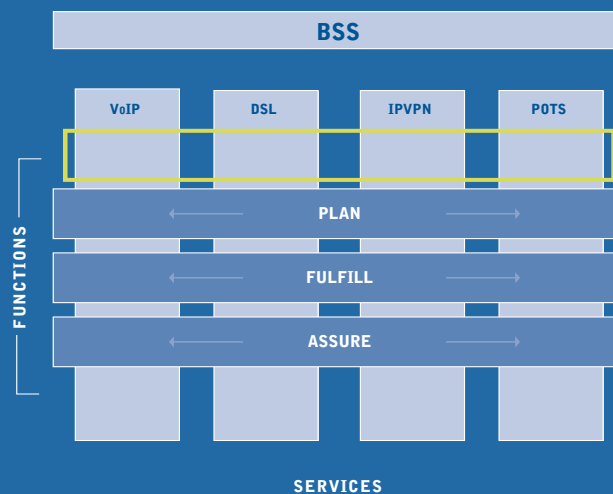
Introducing software to consolidate processes across OSS systems can preserve and stabilize an architecture in preparation for more extensive change. Executed properly, this process consolidation layer can be used as a mechanism for introducing a new OSS architecture – which can later be used as the target architecture for a complete OSS transformation, expanding scope gradually so an operator can meet tactical and strategic objectives simultaneously in an evolutionary way.

This approach is preferred by larger incumbent operators. By virtue of the size and complexity of their legacy systems estate, they need a tactical solution that enables access and reuse of existing data and functionality, while preparing for migration to a next-generation OSS. In many cases, this approach will take place alongside a full-scale BSS-OSS transformation, giving an operator the ability to meet requirements for new services from existing infrastructure, and supplying 'breathing space' while the next-generation infrastructure is developed offline.

#### @ BT MINI-CASE

BT is standardizing its global service management platform using Amdocs across all business units. BT uses Amdocs Service Management Suite, including Amdocs B/OSS Manager to orchestrate fulfillment and assurance processes. It gives BT one single view of a service, regardless of the underlying technologies and systems used to actually deliver and assure that service. This means BT can create new services requiring technologies and activity from multiple underlying systems without slowing time to market. B/OSS Manager abstracts and hides complexity by providing a process layer that orchestrates across disparate systems to achieve one common services definition and interface. In this way, BT is also able to standardize on operational processes and practices to further reduce costs.

### PROCESS CONSOLIDATION



## 4. THE FIVE FLAVORS OF OSS TRANSFORMATION (CONT.)

### 4.5 INVENTORY CONSOLIDATION

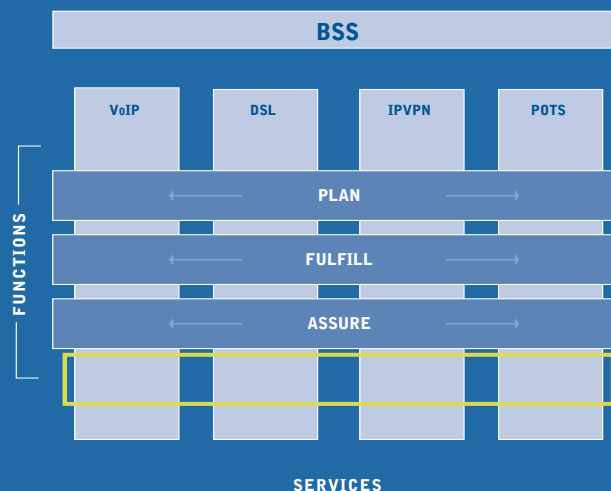
With this alternative, a series of disintegrated, sub-scale or just old-fashioned inventories can be replaced by an integrated, modern, extendable inventory, creating a single point of reference for all network- and service-related data.

Inventory consolidation allows an operator to really understand what they have in place. Fragmentation often prevents having a clear picture of the transformation required – what resources are in use and how services relate to them. Gaining visibility is an important first step. In the short term, operators achieve tactical improvements through inventory consolidation, enabling them to significantly reduce operating costs and increase operational efficiency.

#### @ KPN

Using Cramer OSS Suite, KPN started its transformation process with inventory. Since then, it has expanded the project across all of its operations using an inventory-centric approach. The original inventory consolidation allowed KPN to decommission two legacy systems that had been in place for 30 years. This involved massive data migration, transferring information on over 40,000 locations, nearly three million devices, four million cables and 500,000 circuits from the legacy systems onto Cramer. By consolidating onto one platform, KPN improved process efficiencies and realized significant savings in equipment and headcount.

### INVENTORY CONSOLIDATION



## 5. A FIRM FOUNDATION FOR NEXT-GENERATION OSS

### 5.1 BASIC SOLUTION PARAMETERS

In addition to meeting particular circumstances of the five flavors of transformation, any solution must be able to:

- > Deliver the entire set of functionality, complete and pre-integrated or as individual components.
- > Manage both service and the network infrastructure.

### 5.2 THE SUITE

The foundation for next-generation OSS is an integrated suite. The suite architecture drives major economic gains by allowing component functions to become application modules sharing one common infrastructure, with all working to a common standard schema. The well-designed suite delivers universality, modularity and integrity – features that allow the end implementation to be extended and upgraded, yet remain economical.

As proved in other software markets, an investment in suite architecture means gains for both the supplier and the customer. The supplier can invest development resources more productively in a single product set, while the customer benefits from both a simpler systems estate and lower TCO.

Additionally, a suite encapsulates and hides complexity. It supports coarse-grained interfaces and loose coupling to other major systems. It drives standardization as the architecture emerges and the major interfaces and standardization points become clear.

Internally, a suite is highly structured, with complete meta-data abstraction. The underlying schema can be maintained and upgraded independently of the applications. It is also comprehensive, covering traditional and next-generation networks along with emerging IMS and SDP architectures.

Perhaps most importantly, a suite provides an upgradeable code line.

## 5. A FIRM FOUNDATION FOR NEXT-GENERATION OSS (CONT.)

### 5.3 INTEGRATED SERVICE AND RESOURCE MANAGEMENT

With a next-generation network, any service can run over any infrastructure. A new infrastructure doesn't need to be built to support a new service, making the proliferation of services possible. This requires the management of a services inventory, in much the same way that network and other resources are managed by inventory applications. However, if a service inventory and a resource inventory are maintained separately, the scope for inaccuracy and error is high – too high for profitability.

As services compete for resources, resources must attempt to provide the right quality to each service. For this to work in a reliable and scalable fashion, services and resources need to be managed together – maintaining the relationship between customers, services and the resources used to deliver them. The resource and service model maintaining these relationships must be based on one common schema, allowing properly managed coordination between resources and services. The right level of service can then be delivered and assured with confidence.

## 6. CRAMER, AMDOCS OSS DIVISION: MARKET-LEADING OSS

### 6.1 ACHIEVING THE VISION

Our founding vision for OSS was to provide a suite of modular, integrated products that span all functional requirements of planning, fulfillment and assurance, all technologies and all services. It would be built around a single schema: the inventory – an integrated service and resource inventory, its scope being any network and any service.

Our suite would provide 360-degree coverage of the network, legacy to next-generation, fixed to mobile, physical and logical. It could include IP and IT, and represent all services and how they use network resources.

Our software would allow activities to be synchronized and cohesive rather than isolated. Using one base suite schema in network planning would mean that the inventory could be created as the network is designed. That same inventory would be used to determine the customer configuration, keeping the inventory up-to-date by virtue of its role in fulfillment process automation – thus making the output of fulfillment a complete and current service and resource inventory, which could be used with full confidence to detect and repair faults faster and more efficiently.

### 6.2 BSS-OSS CONVERGENCE

Two key processes require BSS-OSS convergence. The first is at the point of sale, where new services are ordered and need to be fulfilled. As customer expectations increase and the volume of services grows, process automation becomes mandatory. Our fully integrated solution enables the complete order-to-activation process from the point of customer interaction to activation on the network.

The second process is service assurance. Where faults are detected by the customer or through detection software, the assurance process needs to connect problem resolution with customer interaction so customers can be accurately kept informed. Cramer, Amdocs OSS Division, delivers this fully integrated process today.

## 6. CRAMER, AMDOCS OSS DIVISION: MARKET-LEADING OSS (CONT).

### 6.3 A COMPLETE SOLUTION

Market forces have turned traditional business models upside down. Service providers know they need to change the way they operate, and understand the kind of OSS that's necessary for success.

Operators need one flexible, modular OSS that allows them to generate multiple new services at minimal cost, encapsulating and hiding the underlying complexities of network technologies. The architecture must adhere to good design principles to deliver universality, modularity and integrity.

But the success of an OSS transformation project requires more than software. It requires a deep-seated understanding of operations and their business environment, the software itself and all flavors of transformation. In its recent report, "Yankee Group Analysis of Operational Support Systems Deals" (September 2006), Yankee Group acknowledged that Cramer has been chosen for more transformation projects than any other vendor. Our services packages encapsulate and make repeatable the expertise we've gained. Our integrated suite architecture also captures and distributes that expertise via one codeline, creating a customer community where transformation expertise is shared – and applied – worldwide.

It is this unique combination of software and transformation process expertise that makes Cramer, Amdocs OSS Division, the leading provider of a complete solution for OSS transformation.

## ABOUT AMDOCS

Amdocs combines innovative software and services with deep business knowledge to accelerate implementation of integrated customer management by the world's leading service providers. By delivering a comprehensive portfolio of software and services that spans the customer lifecycle, Amdocs enables service companies to deliver an *intentional customer experience*,™ which results in stronger, more profitable customer relationships. Service providers also benefit from a rapid return on investment, lower total cost of ownership and improved operational efficiencies. A global company with revenue of \$2.48 billion in fiscal 2006, Amdocs has more than 16,000 employees and serves customers in more than 50 countries around the world.

For more information, visit Amdocs at [www.amdocs.com](http://www.amdocs.com)

## ABOUT CRAMER, AMDOCS OSS DIVISION

Cramer, Amdocs OSS Division, was formed following the acquisition of Cramer, a leading provider of operations support systems (OSS). The combined Amdocs-Cramer solution is unique in its combination of OSS and BSS, delivering complete visibility of the customer, the network and the service. This will help service providers transition from legacy to next-generation networks and systems, and rapidly launch new converged services that quickly turn network investment into service revenue.

Amdocs has offices, development and support centers worldwide, including sites in:

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BRAZIL  
CANADA  
MEXICO  
UNITED STATES

### ASIA PACIFIC:

AUSTRALIA  
CHINA  
INDIA  
JAPAN  
THAILAND

### EUROPE, MIDDLE EAST & AFRICA:

CYPRUS  
CZECH REPUBLIC  
FRANCE  
GERMANY  
HUNGARY  
IRELAND  
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