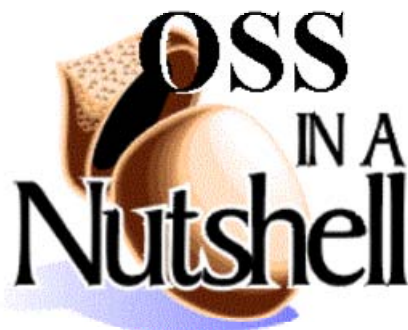




OSSIAN

A market driven approach to architecting and deploying OSS solutions that pay off



Teleca is an international IT services company focused on R&D that develops and integrates advanced software and information technology solutions. With in-depth expertise in the latest technology and profound industrial knowledge, the company helps technology- and software intensive customers worldwide to strengthen their market position and shorten their time to market. The company has more than 2,700 employees with operations in 15 countries in Asia, Europe and USA. Teleca is quoted on the Attract40 list of Stockholmsbörsen (Stockholm stock exchange).

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teleca

OSSIAN in short

OSSIAN is the Teleca way of bringing OSS/BSS solutions to operators, making their business effective. OSSIAN is our umbrella name for:

- the architecture - the master drawing for the OSS/BSS environment;
- the approach to Systems Integration – lean and pragmatic; and
- the suite of Service Offerings – our dedicated and pre-packaged solutions for the operator.

The Challenge

Why is nothing ever simple? Why is it so difficult to get accurate and consistent information into all your databases? Inconsistencies take the guts out of the organization and the workload for maintaining the database is increasing faster than the actual data volume.

Most likely the cost for maintaining and integrating the legacy applications that came “off-the-shelf” after the last merger is far higher than expected.

And why is it so difficult to introduce the new services and network technologies fast?

What should I buy – everyone claim they suit my needs!?! Well, welcome to the club. This is OSS and BSS in the 21st century.

Is there a miracle solution? No, but there is common sense, there are valuable experiences made by many others, and there is an OSS market that provides a full range of competitive solutions. How do you leverage on all that?

Market trends

Furthermore, you have to cope with a number of changes within the industry that are causing all of the old truths to be obsolete. Here are a few of them:

- The restructuring of the telecoms industry from vertical segmentation to horizontal specialization, i.e. the breaking up of the value chain.
- The focus is on providing new value-added services rather than simple connectivity.
- There are heterogeneous New Generation Networks based on IP, multi-protocol label switching (MPLS) and soft switches replacing the traditional network technologies.
- The shift from OSS network management platforms addressing the whole OSS space to solutions based on a variety of specialized application components that are integrated using frameworks like messages buses and J2EE.

OSSIAN - The vision

We have a vision – that one day OSS will become simple and commoditised. That one day operators will be able to focus on their services and how to run their business instead of coping with an OSS/BSS environment that is preventing all this.

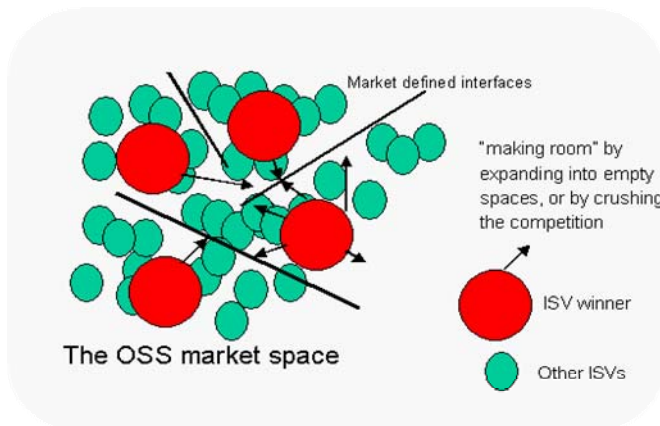
We call the vision OSSIAN – OSS In A Nutshell, and to us it means simplicity, common sense, and doing business.

OSSIAN principles

A complete OSS/BSS environment is a complex beast, and we start with the master drawing describing how to build it. The architecture that defines how the functionality and data is divided into components, how these components inter-work, the interfaces between them and how the data is modelled, to mention a few of the vital issues. And yes, OSSIAN defines that architecture. Here are a few characteristics on the OSSIAN architecture:

An architecture means nothing if it is not accepted and commonly used. To us the only valid architecture is market-driven. We sometimes say, “The market is the architecture”. We have observed that what

leading OSS product vendors manage to sell and deploy tend to become best practise and the de facto standard within the industry. They define a product category, like Trouble Ticketing, Fault Manager, Inventory, etc, where they will compete with a number of “look-alikes”. They have a major impact on the architecture surrounding the product by agreeing with other vendors on the borderline. Some products adopt and provide off-the-shelf integrations to become “ready & enabled” to the leading vendors. Others don’t and that makes them less successful because they require more work to be deployed. In the figure below we visualise the market forces:



Hence, OSSIAN is a market-driven architecture, and to us that is common sense. By adapting to what the market offers and making best use of it, you minimise risks and increase your possibilities to benefit from state-of-the-art development within the industry. No one ever foresees the future, but since you are using the leading products, there will if needed be a comprehensive migration path laid out for you.

For many reasons, the OSS architecture has to be implemented in steps. Foundations have to come first; further investments are then made to enhance business. No one dares to or has the resources to do it all in one step. The OSS architecture must support a phased implementation and be able to co-

exist with your current environment. OSSIAN does.

There are several market approaches to OSS. Suite vendors claim that they can deliver a full-blown pre-integrated solution including customisation services, all in “one-stop shopping”. This may be a successful approach if you are and stay a niche operator. The best-of-breed school favours a collateral, combined offering from several product vendors with the customisation and integration support from Systems Integrators. OSSIAN is an architecture based on the best-of-breed approach with open interfaces and product replaceability as important cornerstones. We do not believe that a suite solution from one vendor is a viable long-term approach, since you will have difficulties to stay ahead and expand your business if you rely only on one vendor.

How many best-of-breed products is a good number for a comprehensive OSS/BSS solution? Many large incumbents have hundreds of systems. And the Suite vendors advocate one or a few. We believe the truth is somewhere in between. It is better to have few products and know and utilise them well, than having a multitude where each is only used to a fraction of its capabilities. Fewer integrations and less reliance on product vendors are some of the advantages.

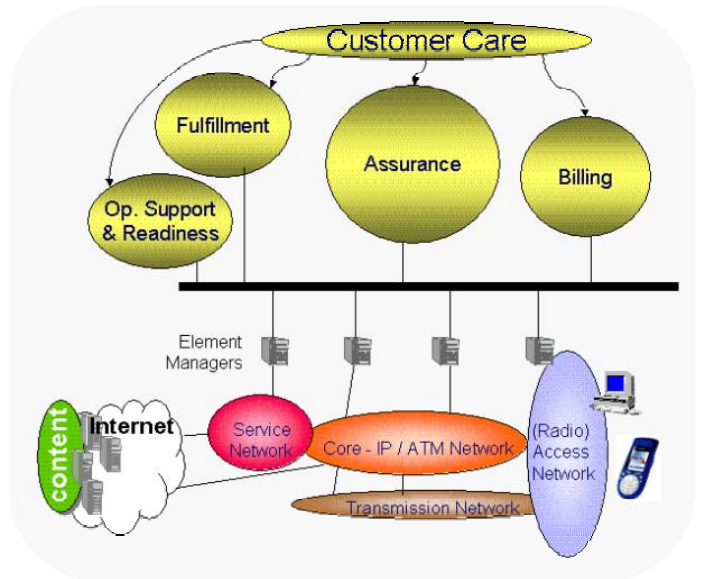
And, will all due respect on architecture matters - what about really deploying solutions? Yes, OSSIAN also defines our approach to systems integration and solution deployment:

What's wrong with "good enough"? The development and adaptation of systems is a game of ever increasing stakes, to rise one notch you have to double your effort. Our approach to systems integration and customisation work is "lagom". It is Swedish and it means "the right amount". By achieving 80% of the requirements for 20% of the effort, the investment makes sense earlier. And architecture fundamentalism is not an option. If the protocol is Corba or Telnet, who cares, if the integration adaptation unit could be bought off the shelf? With OSSIAN we apply common sense in a structured way.

OSSIAN – the architecture

Above we have described some of the characteristics of the OSSIAN architecture. Under the surface there is of course a lot more. The cornerstones of the OSSIAN architecture are:

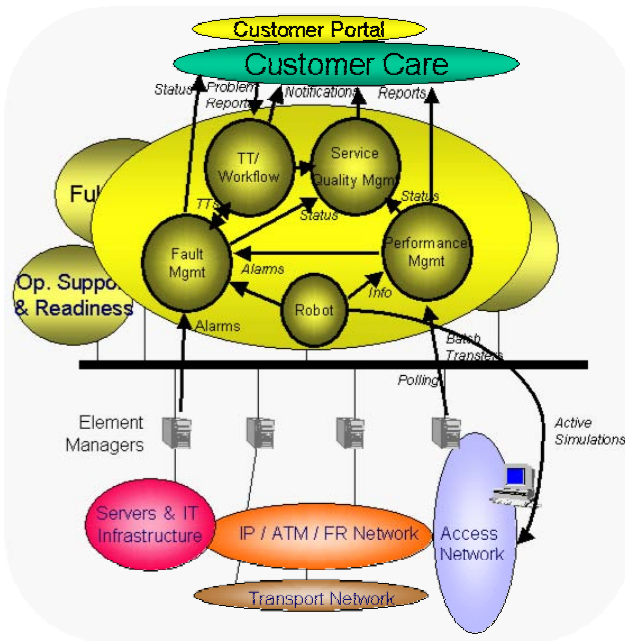
1. TMForum's NGOSS; we fully encompass the foundation laid out by New Generation OSS – the message bus, the shared information model and the process-driven approach. We use it as a source of inspiration, not as an implementation specification.
2. The processes; they govern what the architecture should support, and what a specific solution should do. Of course we rely on TMForum's eTOM. Our simplified drawing of the main processes is visualised below. Here we also represent a collection of various network technologies, including the IT infrastructure supporting the value added services:



3. Within each process bubble we find one or a set of "clusters". A cluster is a collection of COTS (Commercial-Off-The-Shelf) products that together fulfil the needs of a process domain. How did we identify the clusters? Well, by analysing hundreds of OSS implementations, and by interviewing the leading ISVs about how/where/why their product is successful, and verifying with whom they normally integrate, a number of patterns on adjacent product categories appeared. Such a pattern is called a cluster.
4. The architecture further defines Integration Reference Points (IRP) between the components - within a cluster, between components in different clusters and between a component and the network. The IRPs are the "hand-over" points between the different product categories. See the example below.
5. Finally we applied the shared information model that is based on TMForum's SID (Shared Information Data model).

An example

Below a sample cluster in the Service Assurance domain is shown. The figure also visualises the IRPs within the cluster, to the Customer Care cluster and to the network(s). One sample IRP is where a Fault Manager creates a Trouble Ticket.



Our OSSIAN offerings

To summarise, OSSIAN is our OSS architecture. But OSSIAN is more. For each cluster we have defined a Service Offering. Every Service Offering is comprised of:

- A model on how to find a Business case and do a Return-on-Investment analysis.
- A set of partner product(s).
- Our collected experience from a large number of deployments. Integration glues and adaptation units, script and configuration files, web pages and pre-defined object models all form an invaluable toolbox for providing fast and well-proven ready-to-use installations.
- Our established best-practise, i.e. user and operations documentation, training material, etc.

- An arrangement for Support and maintenance available 24*7 starting from day 1.

OSSIAN currently defines a comprehensive suite of Service Offerings covering the major eTOM processes. Each one of them is described in a separate leaflet.

No operator is the same. And for every category of operators there are different business drivers that also have a major impact on their OSS / BSS environment. 3G operators need network rollout systems, and DSL operators need sophisticated provisioning tools, to mention a few examples. OSSIAN recognises the need for Solution Sets, i.e. the architecture and the Service Offerings have distinct flavours that are adjusted to the specific needs of the type of operator. For example, our Solution Set addressing the Fulfilment process for Mobile operators is comprised of Service Offerings covering the areas Network Rollout, Parameter Management, Multi-Service Provisioning and Network Resource Management, all specifically adopted for the mobile environment.

Teleca OSS

Teleca OSS is the “OSS Centre of Excellence” within the Teleca group. We are a focused niche company that addresses the OSS segment in Europe in collaboration with the local Teleca companies in each geography.

We have a strong track record as a Systems Integrator utilising third party products from software vendors. We offer turnkey solutions, consultancy services and EAI solutions for leading telcos. We monitor current trends, standards and ongoing product developments through membership in the TeleManagement Forum (TMF). We use PROPS for project control and Rational Unified Process (RUP) for systems development. We have a

complete OSS lab for demonstrations, projects, training and testing.

What are our characteristics? How do we win and keep our customers? Here are a few highlights of our business concept:

- We are passionate about our OSSIAN vision!
- We understand our customer's business. This means that we know what makes sense to them and on what facts they make their decisions. We add value, through bespoke development or COTS products. And what is good for our customers is good for us.
- We strive for long-term relationships. No "hit and run"! If needed we provide support and maintenance for a solution for 10 years. Just ask us.
- We are lean and mean. We can be this because we are efficient, pragmatic and have done it before. And we are not fundamentalists about interfaces or technology. What makes sense to you makes sense to us.
- We strive to be at the forefront, our aim is to build solutions that are state-of-the-art + 1 by utilising leading OSS products and deploying and combining them intelligently. That means that our customers will gain competitive advantages, and we maintain our thought leadership rather than being a software product installation company.

The Teleca competences

In February 2002 AU-System merged with Teleca. The merger created one of Europe's leading high-end consulting groups focused on new technology and R&D. The group has more than 2700 employees in 15 countries, in Asia, Europe and North America

Teleca is active across the key aspects of wireless and Internet technology and applications development, from the early stage development of new technologies to the deployment of end-user services. The

Company also has extensive experience in providing service line development and technology strategy services.

Our partners

Our partners within OSSIAN are presented below. Depending on the business case and the specific needs, the project may or may not contain these partners' products. OSSIAN always sets the focus on providing the best solution, since it is easy to apply OSSIAN to the specific case. That is one advantage of adhering to a market-driven architecture.

Tibco

The Tibco products empower our customers to dramatically improve their business performance by bringing together disparate and previously incompatible systems, and creating open access to information of all kinds. TIBCO ActiveEnterprise™ enables real-time communications between computer systems and the coordination of end-to-end business processes. With the new TIBCO™ BusinessWorks product, businesses are able to rapidly deploy integration solutions that solve business problems of all sizes.



Micromuse

Micromuse is the leading provider of service and business assurance software. Micromuse's Netcool® suite, which began shipping in 1996, is the core IT management solution in many of the world's most successful service providers and enterprises.



WatchMark-Comnitel

Monitor every aspect of your network at a glance. Respond to service interruptions more quickly. Plan for growth more effectively. WatchMark-Comnitel products make it easy for everyone in your company to collect and analyze network data, so you can maximize network performance, reduce churn, and strategically position your company for 3G.



Cramer

Cramer Systems is an acknowledged world leader in telecoms service/network inventory and provisioning automation. Our products reduce the cost of rolling out and generating revenue from carrier-class fixed line, wireless and data networks.



Intec-Digiquant

Digiquant's IMS platform is among the most advanced solutions for service deployment, management, and billing in the world. IMS is a distributed and highly scalable multi-service platform that integrates the functions required for deploying and managing advanced services. Modular in structure, IMS includes robust authentication, authorization, activation, mediation, rating, billing, and customer care capabilities. Digiquant continues to enhance and extend the solution by integrating support for emerging technologies such as Voice over IP (VoIP), broadband access, and wireless Internet services such as WAP, GPRS, and the upcoming UMTS and CDMA 2000.

Our references

We have a track record of supplying more than 20 major OSS solutions to the Nordic operators during the recent years. Teleca is currently performing major OSS projects for operators like:

- 3; where we are delivering solutions for Service Assurance (Fault, Performance, Trouble Ticketing) and Network Resource Management together with our partners Micromuse, WatchMark and Cramer.
- Skanova, the wholesale connectivity provider of Telia; we are delivering a Billing mediation solution together with Digiquant.
- Telenor; we are delivering a Workflow solution for Multi-Service Provisioning together with Tibco.

And finally – what's next, what can we do for you? Here is a summary of what we believe we can do for you:

- Let us apply OSSIAN on your existing OSS/BSS environment. After a scoping activity we will be able to provide an architecture blueprint and a proposed project catalogue outlining the way forward.
- Where does it ache the most? Please refer to our leaflets on our Service Offerings, they are a good summary of our dedicated skill centres that offer you professional services and solutions addressing a wide range of your OSS/BSS needs.

Why Teleca?

Because we know how to reach the OSSIAN vision – that one day OSS will become simple and commoditised. That one day operators will be able to focus on their services and how to run their business instead of coping with the OSS / BSS environment.

Contact us at operators@teleca.com!