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The OSS/BSS Knowledge Company HUB Technology

Ekhard Konrath

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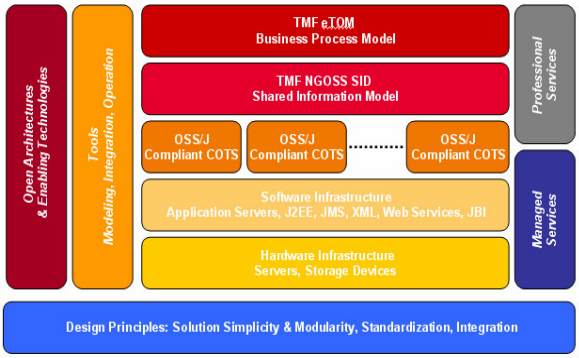
Hub Components Overview



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HUB Concepts

HUB
Concepts

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What is the Integration Hub?

- Software – designed, coded, tested
- Pre-configured versions of best of breed software
- Development framework - methodology and templates
- Customized data mapping between applications
- Extensible and scalable architecture
- Business events and process models designed for the communications industry
- Configurable for clients needs
- Proven solution

Hub Integration Overview

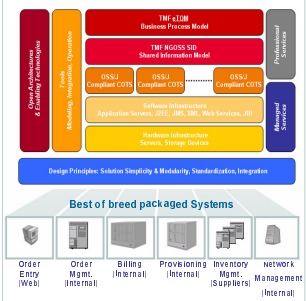
Solution

The Integration Hub provides an end-to-end integrated solution for the Communications and Industry featuring the best of breed packaged systems for:

- CRM
- Billing
- Provisioning
- Network Management

Using OSS/J Middleware, the Integration Hub offers:

- Fundamental Architecture Frameworks
- Data Requirements
- Data Conversion Rules
- Data Communication Rules
- Business Events
- Process Models



Benefits

Leveraging the Hub asset helps businesses:

- Assure quality data
- Reduce costs
- Improve revenue assurance
- Decrease implementation time

Leveraging the Hub asset enables development efforts to:

- Reduce work effort
- Reduce Integration effort
- Use Blueprints
- Lower cost
- Lower risk
- Improve quality

Hub Knowledge Base

Integration Hub Software	Development Foundation	Development Blueprint	IP VALUE Knowledge Base

Communications Industry Process Experience

- Communication industry process models for specific functional areas and Services (i.e. Service Providers Processes)

Product Vision based on Industry Experience

- Support broadband, narrowband, and wireless services
- Fix-, Mobile-, IP- Networks
- CRM, ERP, Billing, Mediation, TT, Inventory, QoS

NGOSS, OSSJ Integration Experience

- Knowledge of end-to-end solutions integration required by service providers
- Extensive experience with best of breed/ relevant packaged applications software
- Extensive experience with Standardisation work, OSSJ, NGOSS, JAVA; JES, J2EE
- Lessons learned from prior implementations Clarify, Temip, Micromuse, OSSJ, MTOSI, Tibco, Vitria, Clarify, Hub integrations

Hub Integration Framework

Integration Hub provides both software and non-software assets that are critical for solution development

Integration Hub Software	Development Foundation	Development Blueprint	IP VALUE Knowledge Capital
Reusable software components include: • Common Foundation Classes • Common Channel Event Classes • Application Connectors for Data Transformation • Process Models • Enterprise Application Customizations	Integration Hub development assets include: • Common Development Toolset • Design Framework • Version Control Tools • Performance Designs • etc. A major component of this design is the "cross application data design"	Integration Hub based planning and development methodology include: • Analysis • Design • Build & Test • Project Management • Work-effort Estimation • Self adapting APIs	Experience in the areas of: • Communication & Service Providers e eTOM Processes • OSSJ API Product s • NGOSS Architecture • System Integration Experience • SID / TNA / MDA / UML /XML • Test tool development • Extensive Middleware Experience

Hub Architecture

HUB Architecture

Some issues (client/server/dispatch configuration, user auth, user identification, flow control, message order), but obviously operation is fairly simple.
Excellence scalability, you can go pretty far with this model (hundreds of "spokes")
Routing is hierarchical and static

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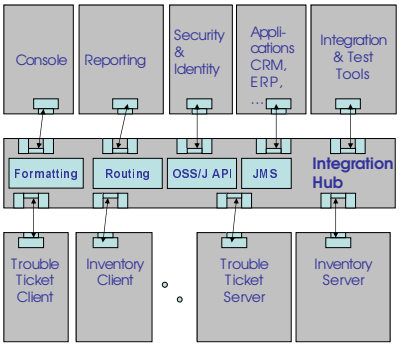
Hub Architecture



- Managing Services
- Adapters
- Applications

- Message Broker Middleware (JMS)
- OSS/J APIs

- Client Components
- Server Components
- Adapters

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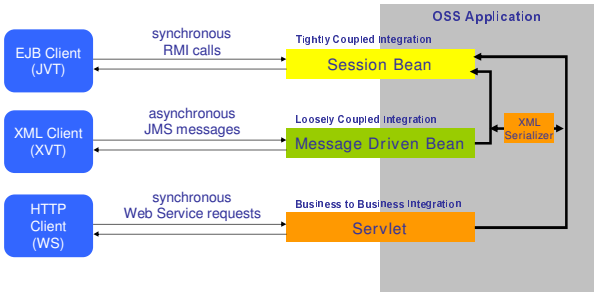
Which communication Profile (RMI, XML/JMS, WS)?



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Architecture Features

Hub-and-Spoke architecture provides significant benefits -- it decouples sender and receiver by inserting an active mediator in the middle - the Hub.

The Hub-and-Spoke style applied in this manner is commonly referred to as Message Broker because the hub brokers messages between the participants

Message Broker should also include a protocol translation and data transformation function

The **Hub** controls the flow between Applications and the **Spokes** being the adapters that queue, translate and send messages and convert to native events.

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Hub Architecture benefits

System scalability
Maintenance and complexity remain relatively constant even if you add more systems as integration partners.

Transactional scalability
Most integration software packages are built on high volume, transacted, mission-critical messaging backbones, designed to scale reliably as user loads and transactions volumes increase.

Loosely coupled
Applications can be brought in and out of the Business Process with much less impact than in a comparable Point-to-Point scenario.

Centralized Monitoring, audit trail, and Process analysis
The middleware acts as a central datastore for the Business Process, providing a single point of control for maintaining data integrity.

One-time Data mapping
The integration software packages provide data transformation services and GUI tools for data mapping. This means an integration partner only has to perform data mapping one time, to a common format.

Centralized Business Process management
Most integration software packages provide advanced business process management functions that include creation, maintenance, and execution of services.

Predictability and cost control
It is much easier to accurately scope and price integration efforts because you're using a consistent interface and the process management is centralized.

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Meassaging Servers existing Products

JMS (Java Messaging Service)
Sun ONE Middleware Server

Websphere MQ (MQSeries)
Has JMS interface

MSMQ (Microsoft Messaging Queue)

BEA Systems

ObjectWeb (Open Source) JORAM (JMS)

Fiorano
JMS interface

Sonic Software (Sonic MQ)

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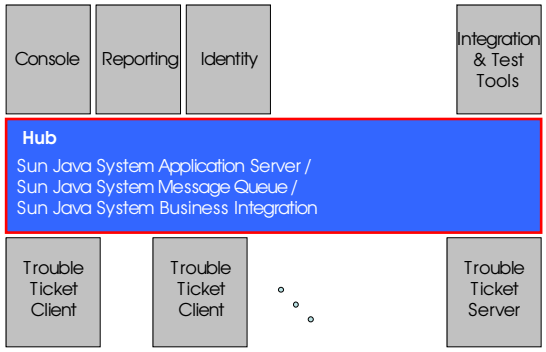
Integration



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The OSS/J Trouble Ticketing Integration Hub

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Building Blocks

- **COTS:**
  - Sun Java Enterprise System and OSS/J components
  - Sun StarOffice and OSS/J components
  - IP VALUE premioss™-tt OSS/J-certified TT API + OSS/J TT Client Adapter Framework
  - IP VALUE premioss™ Integration Tools
  - TT Clients
  - TT Servers
  - Sun Hardware
- **Customization**
  - OSS/J components (presentation, parameters)
  - IP VALUE premioss-tt OSS/J TT-certified Adapter + OSS/J TT Client API Framework

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OSS/J Integration

- J2EE, XML, Web Services deployment:
  - Sun Java System Application Server version 8 implementing J2EE 1.4 for OSS/J J2EE/JMS integration
  - Sun Java Message Queue for OSS/J XML/JMS integration
  - Sun Java System Business Integration for OSS/J Web Services integration & SOA
- JES Stack:
  - Linux, Solaris, SPARC, x86
  - Cost-effective Licensing Model
  - Complete MW Integration

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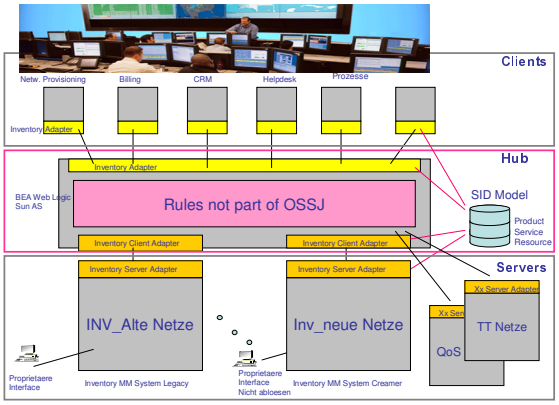
Inventory Hub Architecture



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Hub Examples

HUB Examples

Banking
Telecommunication
News Sercer
E-Mail
Integration Legacy Systems

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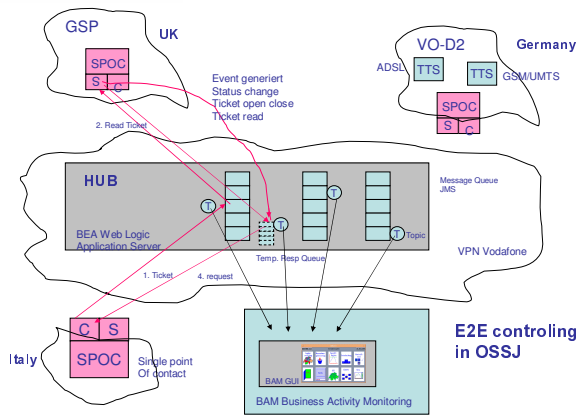
Business Activity Monitoring



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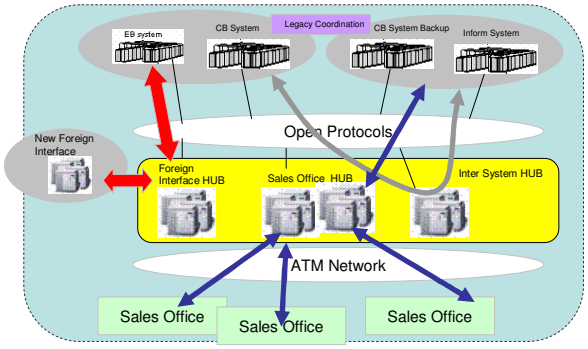
Banking

Developing this **HUB**-based branch integration system as part of a system integration project resulting from a merger between Banks.The functions previously provided by 600 servers in both banks locations were relocated to a central computer center, where 48 UNIX servers provided the same functionality.



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Open Mission Critical Systems

Open Mission Critical Systems (OMCS) Technology

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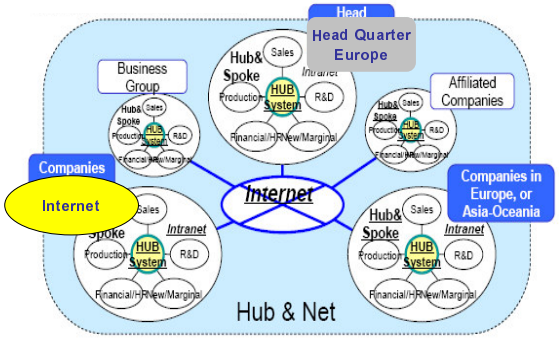
Manufacturing

Manufacturing Industry System Platform Architecture Concept, based on Hub & Spoke and Hub & Net



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Open Mission Critical Systems (OMCS) Technology

Goals

1. Achieves the goal of mission criticality.
2. Utilizes proven hardware and software based on a "best-of-breed" philosophy.
3. Uses unique, “extended” middleware to enhance performance, reliability and availability.
4. Enables rapid development of systems through a focus on business process management, resulting in increased agility, scalability, and reliability.
5. Based on Hub & Spoke Architecture and Technology.
6. For Banks, Insurance, Pharma, Telcos, all kind of Enterprices

The OMCS Framework

- **Methodology** Having acquired a wealth of knowledge and experience in mission critical system development, IP VALUE has established the OMCS methodology for an open architecture. The OMCS methodology provides for **building mission critical systems** in a short period of time, and is proven in projects.

- **Pre-integrated and tested units** A unit is a combination of field-proven, best of breed hardware, operating systems, middleware and other components. An OMCS platform can be fabricated by combining units. Examples of units include an OLTP unit and a database unit.

- **Tools** A rich set of tools and templates are used to shorten system development. An example of an OMCS tool is the configuration template which is used to generate configuration parameters for all the components in a unit.

- **Extended middleware** Middleware to enhance open systems TP monitors, application servers, databases and other components in the architecture.

- **System integration (SI) consulting services** System integration services round the World will be provided by SUN, IP VALUE's and partners.

OMCS Value Proposition

The OMCS value proposition includes shorter development cycles, lower ongoing maintenance costs and greater scalability and flexibility.

System Integration Technology to develop a highly reliable Platforms in short time

Standards based open systems, however, utilize off-the-shelf package development, allowing OMCS integration to take advantage of both packages and custom development, resulting in rapid development.

A mainframe platform is provided through a single vendor, while an open system, utilizing products from various vendors, this requires a much greater systems integration effort.

IP VALUE established its OMCS platform integration methodology, which utilizes combination of pre-integrated, best-of-breed products, through experience in developing large-scale OMCS systems.

We offer two system integration methods:

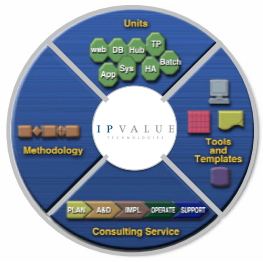
- Unit Combination Method
- System Model Method.

These methods substantially reduce OMCS platform development and integration work.

Architecture

The OMCS architecture is used to quickly develop mission critical systems. The architecture includes a pre-integrated hardware and software platform architecture as well as methodology, tools and templates.

The architecture is "battle tested" and has been used in some of the largest open system, mission critical implementations.



- **Units** A unit is a reusable modular component comprised of a field-proven combination of best-of-breed hardware, operating systems, middleware, IP VALUEs and other products.

- **Methodology** IP VALUE was using OMCS methodology for an open architecture. The OMCS methodology was provided for building mission critical systems in a short period of time, and is proven in actual projects.

- **Tools and Templates** A rich suite of tools and templates was developed and used for OMCS solutions. Integration templates. The templates significantly reduce system design and integration costs.

- **Consulting Services** We fully assist customers in the creation of next-generation enterprise systems. This comprehensive service, advanced technology and proven know-how, extends from system planning and integration to operational support during the entire service life of the system.

Unit Combination Method (UCM)

The unit combination method allows system architects to combine existing pre-defined units (Application units, Database Units…) to create a platform architecture.

Using existing units, that have already been developed and tested → results in a substantially shorter project cycles. Because the HW/OS/Middleware combination has already been evaluated and tested, there is also a substantial reduction in the manpower required for product evaluation.

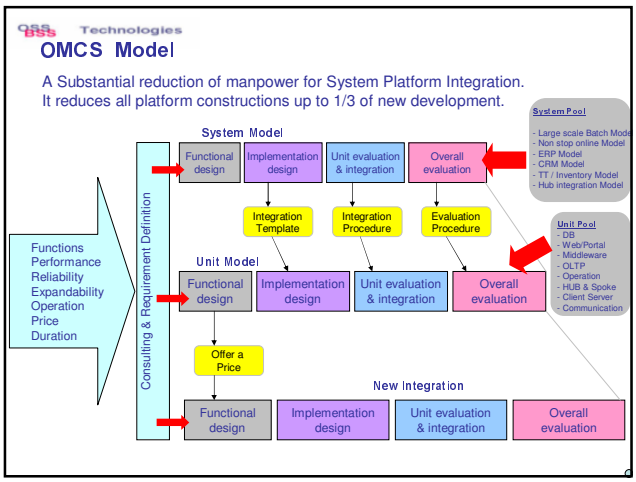
A unit is a reusable modular component comprised of a specific combination of best-of-breed hardware and software products. It is fully evaluated and field proven. Thus unit-based integration can avoid unforeseen problems caused by unverified product combinations from multiple vendors.

System Model Method (SMM)

System models are field proven OMCS frameworks → patterned after actual installations and serve as models for efficiently building OMCS solutions.

Their architecture and parameters can be emulated to significantly reduce the time-to-deployment from design to integration and evaluation.

Examples of system model architecture include a high-reliability system model and hub integration system model.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OMCS Model
A Substantial reduction of manpower for System Platform Integration.
It reduces all platform constructions up to 1/3 of new development.
System Model
Functional design
Implementation design
Unit evaluation & integration
Overall evaluation
System Pool
- Large scale Batch Model
- Non stop online Model
- ERP Model
- CRM Model
- TT / Inventory Model
- Hub integration Model
Integration Template
Integration Procedure
Evaluation Procedure
Unit Pool
- DB
- Web/Portal
- Middleware
- OLTP
- Operation
- HUB & Spoke
- Client Server
- Communication
Functions
Performance
Reliability
Expandability
Operation
Price
Duration
Consulting & Requirement Definition
Unit Model
Functional design
Implementation design
Unit evaluation & integration
Overall evaluation
Offer a Price
New Integration
Functional design
Implementation design
Unit evaluation & integration
Overall evaluation