



A Step Along the Way: Using Ajax, Portals, and Services for Better Network Management

Anton McConville

Software Architect
Nortel

www.nortel.com

Session TS-8541

About Me

- 15 years of software experience in Ireland, England, Canada; worked as designer, manager, architect
- Base/xml models, EmbeddedJava™ environment, Java™ applications, web apps
- Software running in > 20,000 backbone nodes worldwide
- HMI patents pending in the area of telecoms software

Can We Make It Better?

Improving network management software with Java™ Platform, Enterprise Edition (Java EE) and 'Web 2.0' concepts

How the concept of service orientation can fit with portals, EJB™ 3.0 architecture, and Ajax to liberate smarter solutions!

Agenda

Inspiration for this presentation

What service orientation means to me

Leveraging EJB 3.0 architecture

Value that a portal can add

Choosing an Ajax approach

Conclusions

Q&A

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‘Cursed With Responsibility’

...Scott McNealy, 2006 JavaOneSM Conference

- Enough sys admin to support one laptop per child!?
- Total number of Internet users in the G8 countries = users in the whole rest of the world combined
- Can today’s technologies help make a difference for sys admin?



Wonder How It Would Be Used?

Aside—how do we use the Internet?

- Would it be used in the same ways on both sides of the DD?
- Think of all the stories to be told
- Think of all the untapped minds



Browse the most popular sites on the web. [Learn more.](#)

1.  **Yahoo!**
Personalized content and search!
[yahoo.com](#) - [Site Info](#)
2.  **Google**
Enables users to search the Web translation of results, and an opt technology.
[google.com](#) - [Site Info](#)
3.  **Myspace**
Social Networking Site.
[myspace.com](#) - [Site Info](#)
4. **Microsoft Network (MSN)**
Dialup access and content provider.



Connecting the Dots

- Is this just a problem for Africa!? Let's dig deeper
- Quickly examine the history of today's networks
- Look at the case study of a real world SOA applied to the problem
- Projecting a future for a service-oriented approach

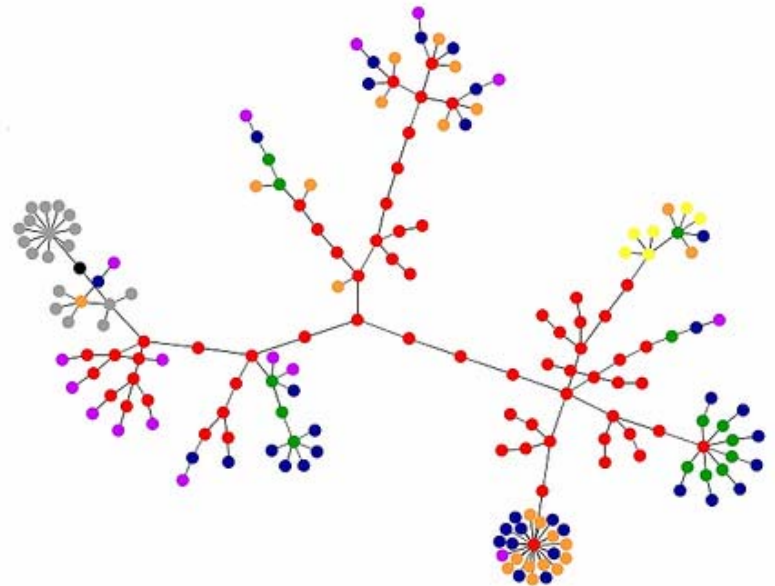
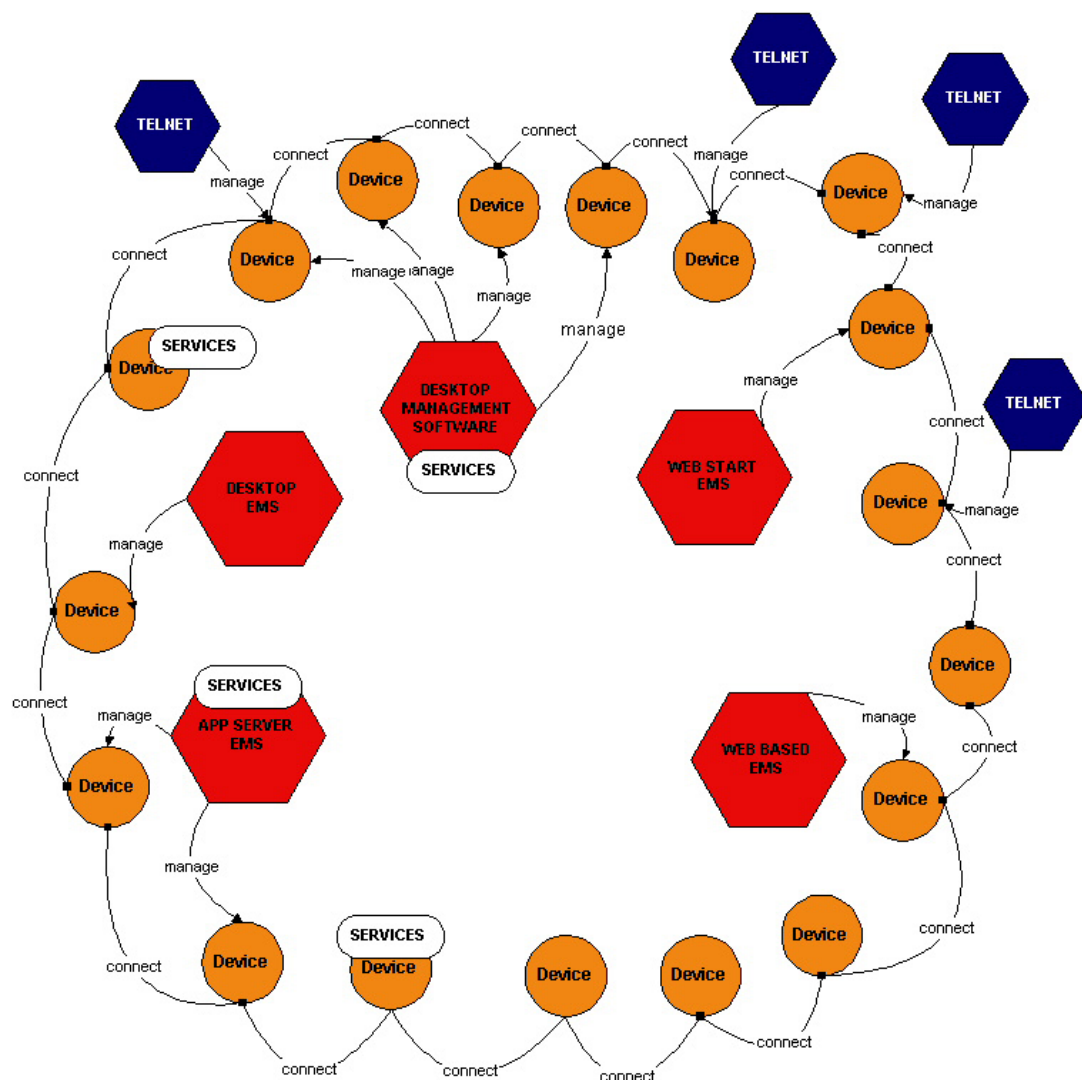


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Networks

Today

- Tricky on all sides of the digital divide!
- Networks/devices grew up in a largely disassociated way
- No reason to think it will continue growing differently

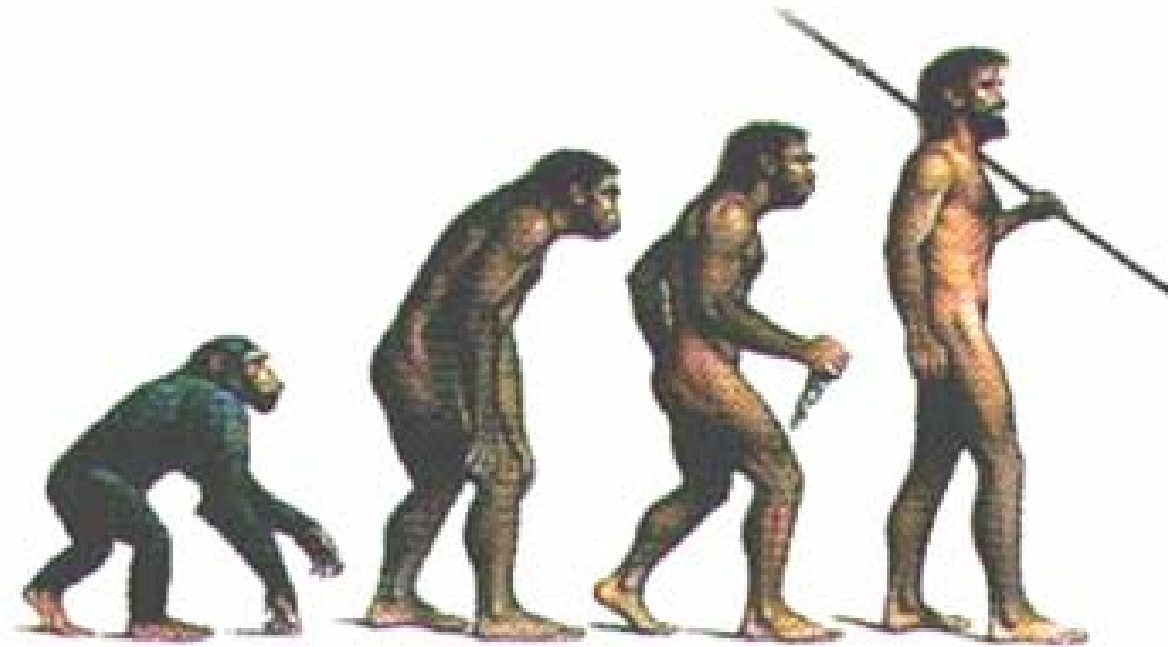


The Goal

- Reduce the number of log-ins to separate management tools
- Discover, share and **navigate devices** in a network
- Discover, share, **navigate**, and **launch services** in a network
- Outline a structure for **service reuse** within Enterprise networks
- Enable a future of **service orchestration** across the networked devices



Management Spectrum



Device Orientation Network Orientation Service Orientation

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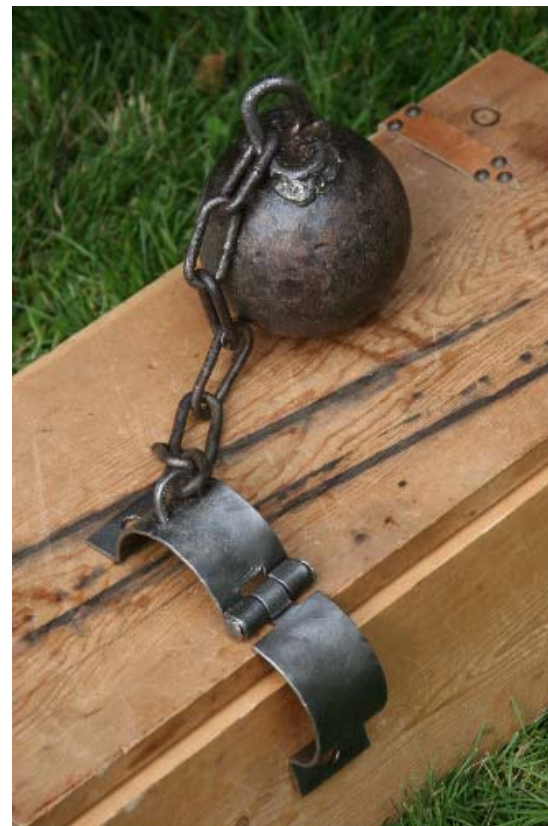
Demo

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Liberation

- Service orientation = the **liberation** of data
- Recognizing the business needs surrounding data
- Open cultivation of the data to meet the business needs
- APIs to access data



Services in the Web 2.0 World

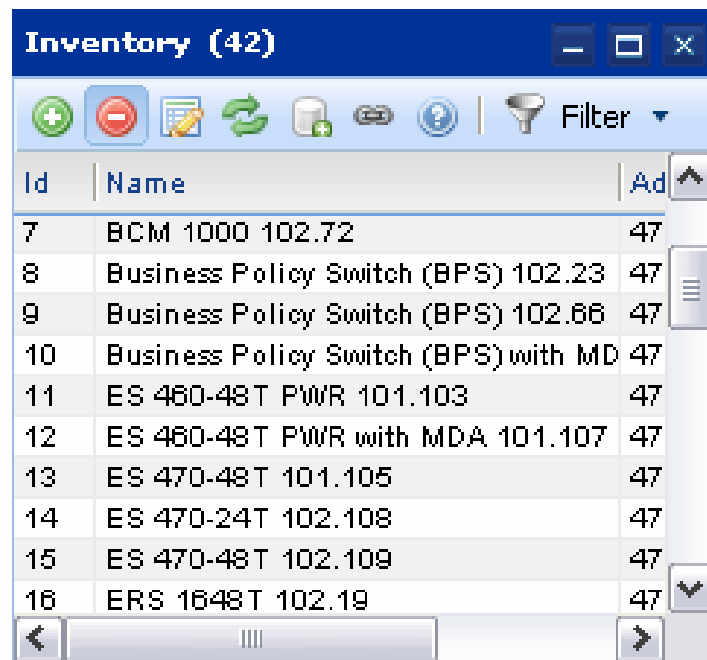
Service Interfaces

- **Flickr**—wealth of interfaces
- **Backpackit**—API
- **Google**—API
- **Yahoo pipes**—graphical masher



Network Management Service Example

- Network Inventory becomes a service
- The life blood of four other applications that previously managed their own snapshot of it
- Cultivated to meet the business needs of all



Id	Name	Ad
7	BCM 1000 102.72	47
8	Business Policy Switch (BPS) 102.23	47
9	Business Policy Switch (BPS) 102.66	47
10	Business Policy Switch (BPS) with MD	47
11	ES 460-48T PWR 101.103	47
12	ES 460-48T PWR with MDA 101.107	47
13	ES 470-48T 101.105	47
14	ES 470-24T 102.108	47
15	ES 470-48T 102.109	47
16	ERS 1648T 102.19	47



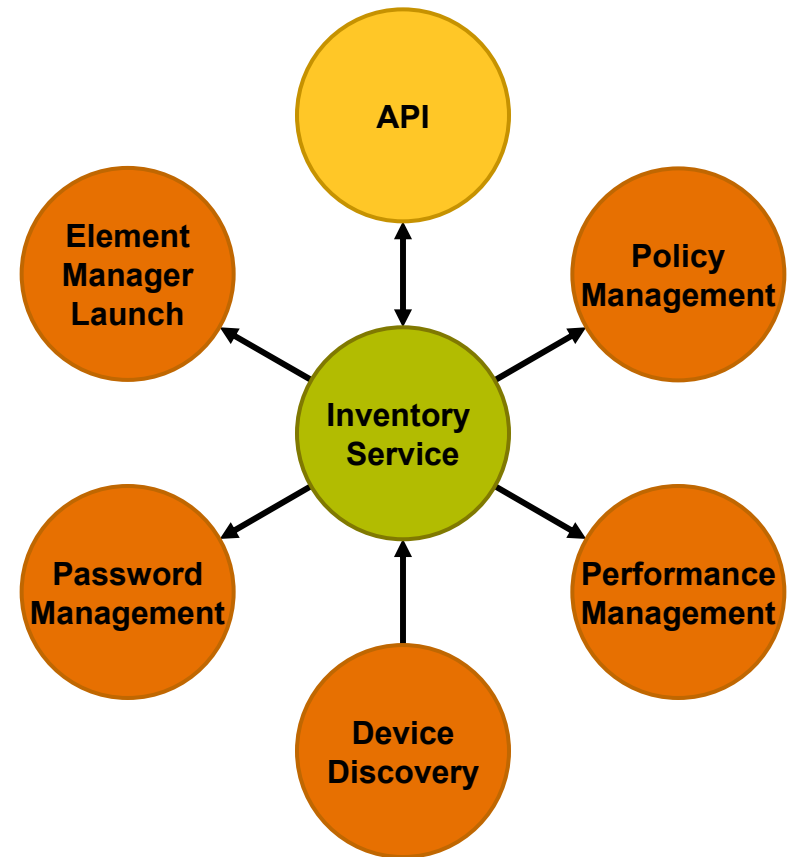
DEMO

Inventory Service

<code>/>

Result of Service Orientation

- A different approach for us
- One great inventory service for other services to build on
- Instead of lots of isolated glimpses of inventory



SOAP

- EJB 3 architecture annotations produce SOAP interfaces
- Opinion—lots of hype REST .v. SOAP
- SOAP scales OK for our uses so far





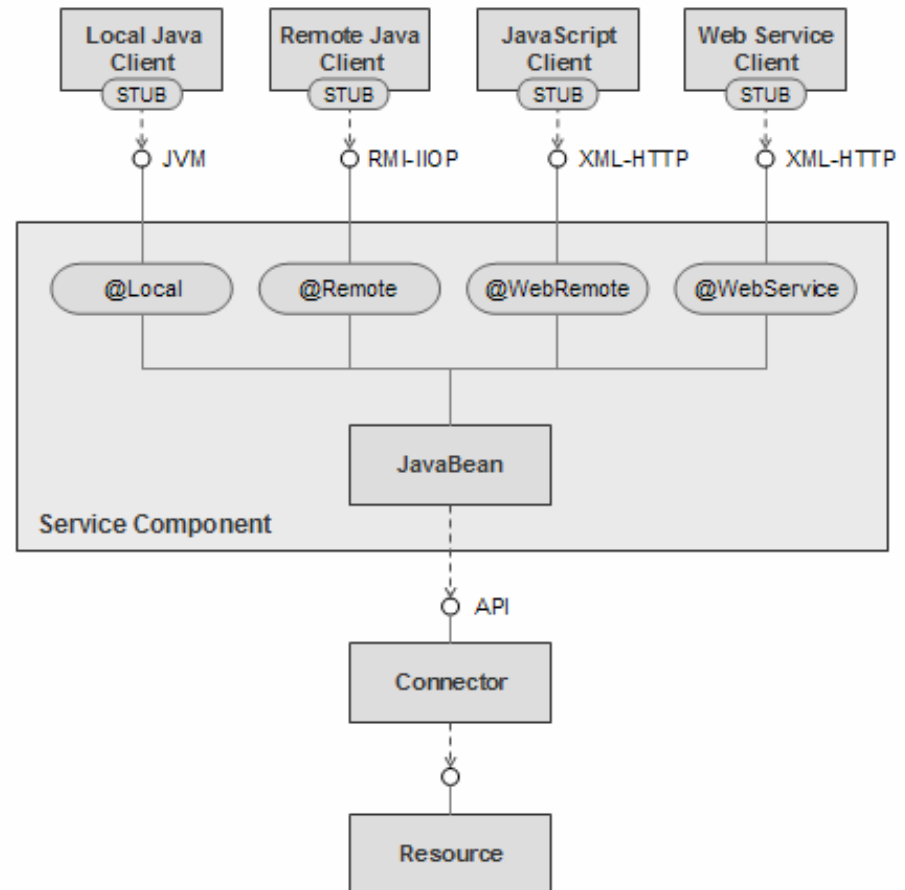
Demo

Web Service



At the Engineering Level

- Based on EJB™ 3.0 component architecture beans
- Use annotations to declare aspects of the service
- Web services are document-based SOAP interfaces

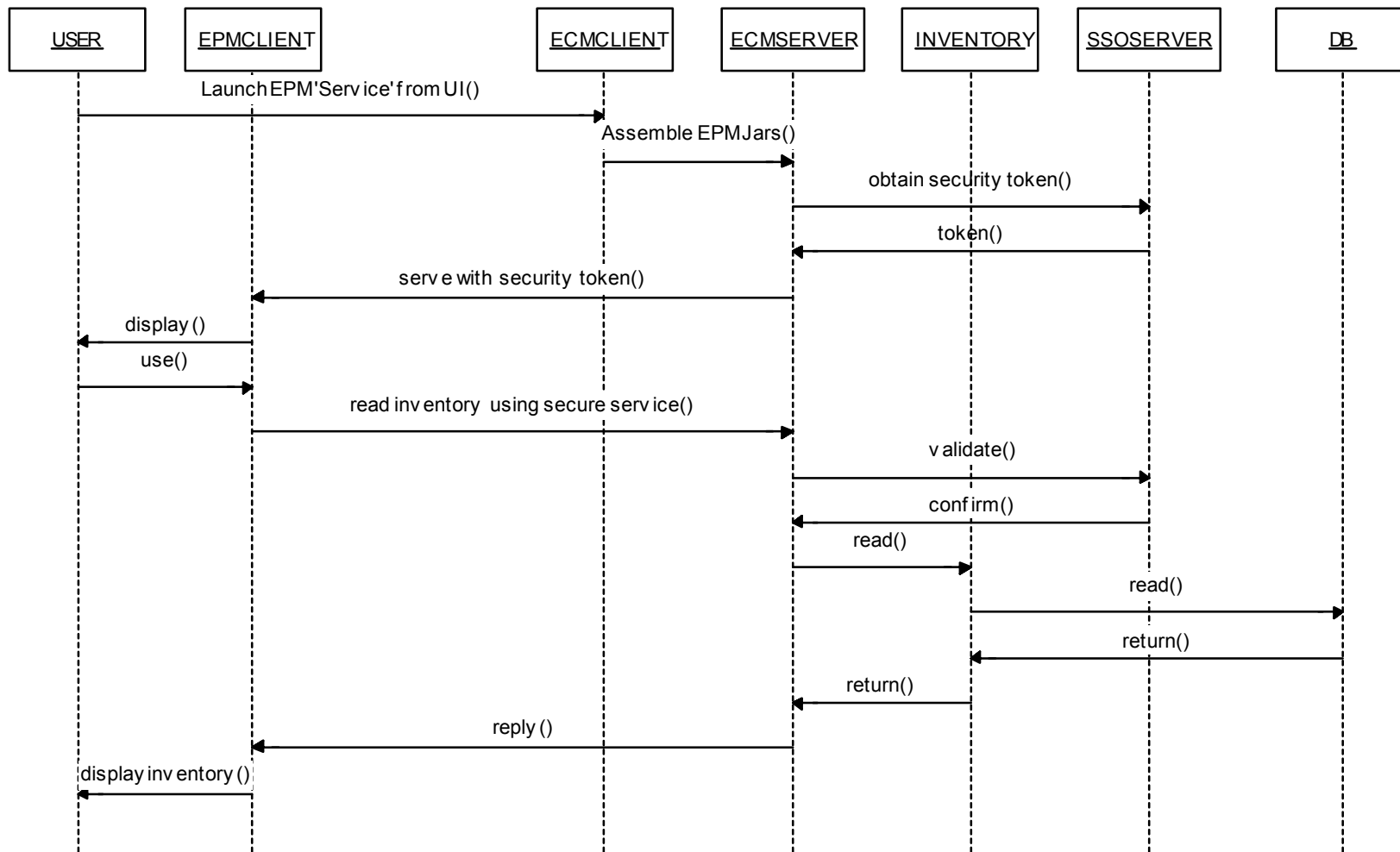


Securing Services

- Using Oasis WS-S standard
- Like it for the scenarios that we've identified
- But found a lack of C++/PHP tools for working with SSO encryption



Secure Service Sequence



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Inventory Code Sample 1

```
public class InventoryBean implements Inventory, InventoryService {  
    public void createNetworkElement(NetworkElement element) { ...  
    public void deleteNetworkElement(Long id){ ...  
    public void updateNetworkElement(NetworkElement element) { ...  
    public NetworkElement getNetworkElement(Long id) { ...
```


Inventory Code Sample 2

@Stateless

@Local

@Remote

@WebRemote

@SecurityDomain("***")**

**@FilteredService(name = "Inventory", searchableClasses = {
NetworkElement.class })**

@Interceptors(com.nortel.emp.licensing.LicensingInterceptor.class)

@LicensedComponent(name = "SR", version = "1.0")

public class InventoryBean implements Inventory, InventoryService {

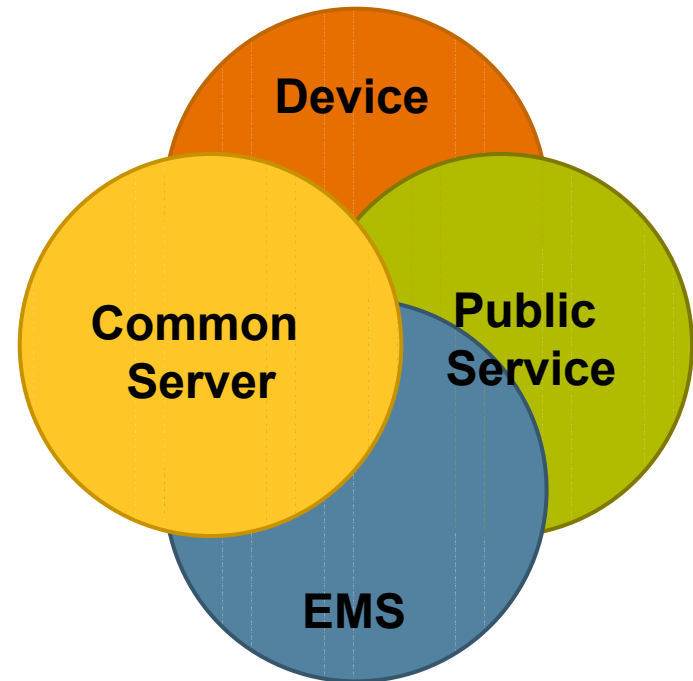
/* logger for all instances of this class */

private static Logger log = Logger.getLogger(InventoryBean.class);

Equality

Service orientation in a network

- SOA doesn't dictate a hierarchy
- Need to be able to find and automatically orchestrate services
- Solutions inter-rely on services defined by network components



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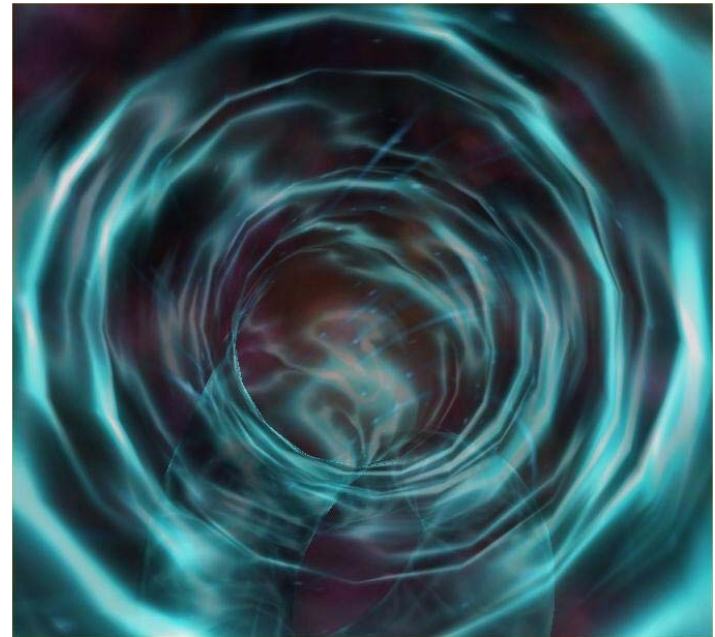
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Mystical Portal Java™ Specification Request (JSR-168)

- Portal spec had a lot of foresight!
- Portals offer a UI framework right out of the box
- Personalized content management



DEMO

Portlet instances and personalized
content management

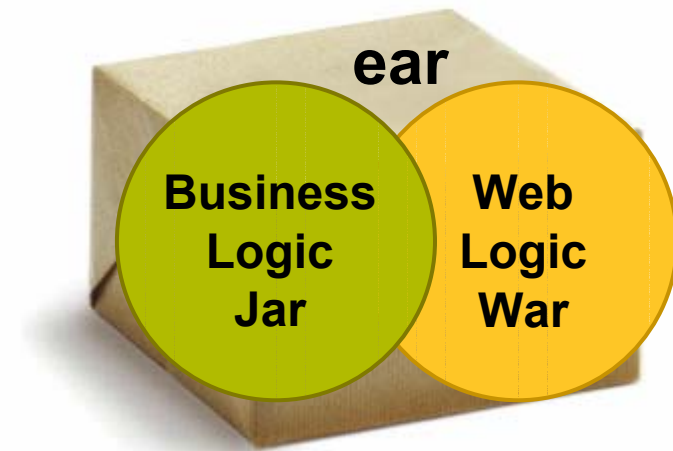
More Than Just Data on Tap

- Services don't have to end at the API
- Portlets are a great visual metaphor
- What's the scope for writing one great portlet, or widget that can be reused too?



Packaging/Deployment Options

- Business logic and web logic in an **ear**
- Hot deployment on JBoss AS/Portal
- Beautiful way to package a service
- Also Web services for remote portlets



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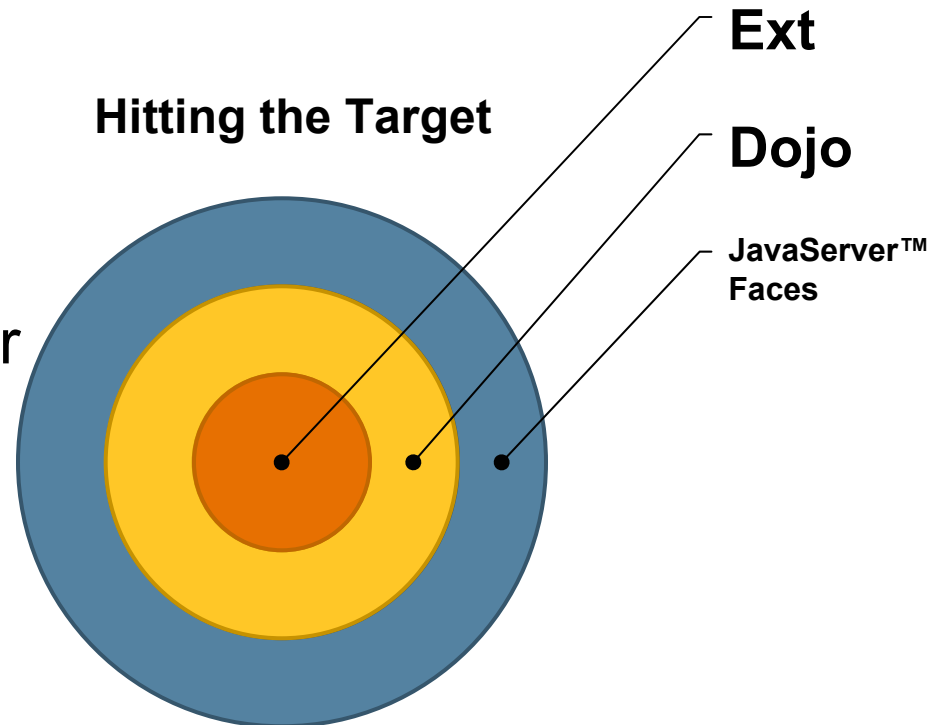
Ajax and Portals

- Web 2.0 influences
 - **Meebo**—pop out windows, multiple conversations, logs
 - **Flicker**—graphically organizing photos
 - **Netvibes**—aggregating content/filtering
- Customers are asking for web-based apps
- How best to build them?



Choosing an Ajax Approach

- Is it even possible to build something like Netvibes with JavaServer™ Faces technology?
- The action is in the browser
- Ext (Jack Slocum) and YUI proved the best fit for usability and our team's experience
- Combined with web remoting (Seam)





DEMO

Ext highlights

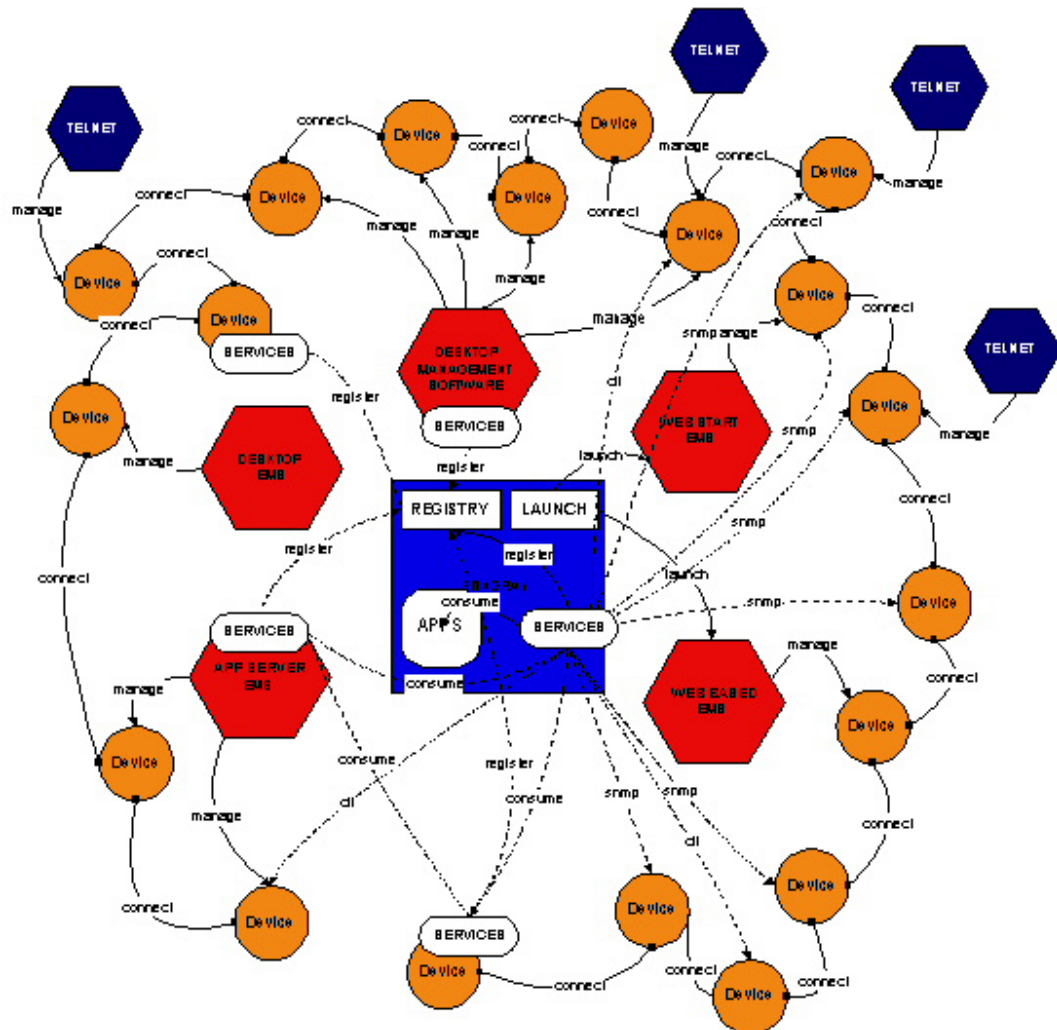


Conclusion

- I've demonstrated that solutions grow more powerful when built around business-oriented services like the inventory
- I've showed the scope for common orchestrated management over defined services
- I've showed how it can be built with Java EE technology, Ajax, portals, and aggregated services

Shift

- I've hinted at a future of smart networked services
- We've taken the first steps along the way...



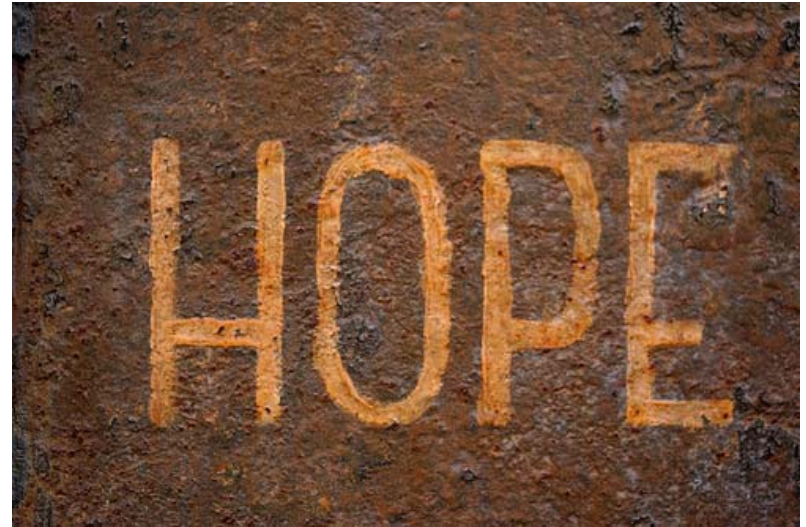
The Attitude to Cultivate/Reuse/Recycle

- Part of SOA is the will to recognize opportunities for reuse
- Leverage what has already been built
- Use services that amazing people like JBoss and Sun offer, instead of building them again
- Stop building the same things again and again!



Newer and Better Things...

- There are newer and better and cooler things to be built
- The concepts and tools are ready (with Java programming language) today
- Lets build....!



Better...

‘Cursed with responsibility’

Scott McNealy, Founder of Sun Microsystems

‘In dreams begins responsibility’

William Butler Yeats (1865–1939),
Irish Nobel Prize-Winning Poet

For More Information

- www.nortel.com
- <http://blogs.nortel.com/johnroese/>
- <http://www.laptop.org/>



Q&A

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