GlassFish in real life

Deployment Stories





Wotif.com GlassFish Case Study

Greg Luck Chief Architect, Wotif.com





Wotif.com Case Study Key facts and figures

- Australia's No 1 Hotel Booking Site
- Rapidly Growing elsewhere
- 1,000,000 users
- 10,000 concurrent users
- 3.6 million room nights sold per year
- 9000 hotels
- Very Large Pages by design (some > 1.5MB)

Source: http://blogs.sun.com/stories/entry/wotif http://www.networksasia.net/ena/article/articleDetail.jsp?id=393040 http://info.wotif.com/pdf/Wotif.com_Facts_Figures.pdf





Wotif.com Case Study Screen shots – Home Page



Source: http://wotif.com



Wotif.com Case Study Screen shots – Search Results

wotif	COM																	ſ
28 days of g	reat deals! Home	About Us C	Contact	Us												Inves	tors	
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+ 15 more screenfuls for a total of 1.5MB

Support many of these per second

Source: http://www.wotif.com/search/Simple?refine=simpleSearch&country=1®ion=1&viewType=all



Wotif.com Case Study

Technology Platform

- Sun AMD64 Servers
- RHEL5
- 64bit Java technology 5 moving to 6
- GlassFish V1 UR1
- Open Message Queue
- Oracle & MySQL
- Full stack Java EE 5
- Also lots of open source, including ehcache





Wotif.com Case Study Why we chose Glassfish?

- Needed to move off Orion
- Wanted Java EE 5, open source or cheap
- Wanted commercial support
- Path to the future
- Considered JBoss, Geronimo, non-Java EE like Tomcat and Resin.
- Evaluated by doing a small test port of the busiest pages and running it in our performance and stress test environment
- Worked Great!



Wotif.com Case Study Porting Experience

- Started with 8 spikes including performance, stability and security
- 5 devs took one month
- J2EE 1.3 > Java EE 5 (Servlet 2.5, JSP 2.1, EJB 3)
- Required extensive regression testing
- Dev issues:
 - Bugs
 - Memory use
 - Startup and deploy times
- Upgraded Dev machines to 3GB and some to dual core
- Went live January 2007



Wotif.com Case Study Bugs Raised

- We have raised around 10 bugs on Glassfish. Most of these are now closed.
- There is a PermGen memory leak on redeploy. Developers have to restart after about 10 deploys.
- The guide to configuring domain.xml is very patchy. It is a lot of trial and error to tune your app. We need a tuning guide. I have already suggested this to Jeanfrancois Arcand.
- The QuickStart feature is very buggy. We turned it off to resolve a whole host of bugs we had. We suggest it is turned off by default until it is fixed.
- Unfortunately we hit a show stopper in SSL with Grizzly. Used Catalina which is done using a system property



Wotif.com Case Study

Extending Glassfish with Other Open Source Projects

- Ehcache distributed cache. We use inter alia for HTTP response caching
- Spnego A JMAC plugin for Kerberos



Wotif.com Case Study Ehcache

- Required some minor changes to the Caching Filter to support GlassFish. Version 1.2.4 supports GlassFish
- Hibernate Persistent Object and Collection Caches
- Distributed Page Caches in a "Customer" cluster
- AJAX XML Response Caches
- Distributed Java technology Object Caches
- 5 GB Heap. Requires fine tuning of GC
- Uses SelfPopulating and Blocking Cache
- Web Cache Full Page & Fragment Web Filters
- Disk Store and Persistent Disk Stores



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Spnego

- Spnego is an SPNEGO and Kerberos plugin for GlassFish.
- Enables GlassFish to participate in a Single Sign On environment using Kerberos.
- Works with IE, Firefox and Safari on Linux, Windows and Mac OS X
- First version finished and will be released soon
- Requires GlassFish V2 and JDK6
- Developed by Wotif.com and Sun.
- CDDL License
- http://spnego.ocean.net.au



Wotif.com Case Study Future Plans

- Moving to GlassFish V2 in August
- Implementing an Enterprise Message Queue using Open Message Queue 4.
- Moving to Java 6 in August
- Implementing an enterprise wide Kerberos Single Sign On IAM. Will start using SPNEGO module with GlassFish in August.
- Maybe: Port two RoR apps to JRuby and run in GlassFish



Relevant Sessions at JavaOne

Ehcache

Session ID: TS-6175 Session Title: Distributed Caching, Using the JCACHE API and ehcache, Including a Case Study on Wotif.com

Track: The Next Generation Web

Room: Esplanade 307-310

Date: Tuesday 08-MAY-07 Start Time: 10:50

SPNEGO

JMAC Birds of a Feather Session (Ron Monzillo of Sun)



Q&A



Harvard's Dataverse Network on GlassFish

Merce Crosas



16 CommunityOne 2007 | Session GlassFish in Real Life (Use Cases)

Who are we? What do we do?

Introduction to the Dataverse Network

- The Dataverse Network is a data-sharing project housed at Harvard's Institute of Quantitative Social Science.
- It has been written from scratch since 2006 (based on its precursor, the Virtual Data Center).
- It allows researchers and students to:
 - Disseminate and cite data
 - Replicate published work
 - Perform on-line data analysis
- It's currently used by Harvard and MIT at: http://dvn.iq.harvard.edu/dvn (Beta)
- Other Universities and research centers are adopting it as well (for example, ODUM at the UNC).
- We are extending it to support data in other research fields.



Why GlassFish?

- Two main reasons:
 - Free, Open Source The Dataverse Network is open source and relies on other open source technologies.
 - Java EE 5 compliant Need a maintainable and rapid to develop architecture: EJB3 and JavaServer Faces.

Other Open Source Technologies we use:

- Apache Lucene 2.0 (index/search)
- Shale Tiles Integration
- OAIHarvester, OAICat
- R, Zelig (statistical computing)







Configuring GlassFish: postgreSQL

Sun Java [™] System Aj	pplication Server	Admin Console	
Common Tasks	Resources > JDBC > Conner	ction Pools > VDCNet-devpool	
- 📄 Application Server	General Advanced	Additional Properties	
 Applications 			
Enterprise Applications	Edit Connection Po	Save	
- 🛅 Web Applications	Modify existing JDBC connectio	n pools. A JDBC connection pool is a group of reusable connections for a particular database.	
- EJB Modules			
- 🛅 Connector Modules	General Settings		
- Difecycle Modules	Solioi al Couligo		GlassFish
Application Client Modules	Name:	VDCNet-devpool	
– 🥥 Web Services	Datasource Classname:	org.postgresql.ds.PGSimpleDataSource	
¥ 🛅 JBI		Vendor-specific classname that implements the DataSource and/or XADataSource APIs	
- 📄 Service Assemblies	Resource Type:	javax.sql.DataSource 💌	
Components	Descriptions	Must be specified if the datasource class implements more than 1 of the interface.	nonterroad & 2day E02 idea2 ior
Shared Libraries	Description:		posigresqi-8.20ev-503.jubc3.jar
- 👩 Custom MBeans	Pool Settings		
🔻 🍙 Resources			
🔻 📄 JDBC	Initial and Minimum Pool	Size: 8 Connections	
▶ 📄 JDBC Resources	Maximum Dool Cizor		
jdbc/TimerPool	Maximum Pool Size:	32 Connections Maximum number of connections that can be created to satisfy client requests	
jdbc/CallFlowPool	Pool Resize Quantity:	2 Connections	
- 📄 jdbc/default		Number of connections to be removed when pool idle timeout expires	
jdbc/VDCNetDS	Idle Timeout:	300 Seconds	PostaroSOL
Connection Pools		Maximum time that connection can remain idle in the pool	FUSIGIESQL
CaliFlowPool	Max Wait Time:	60000 Milliseconds	v8.2
- 📄TimerPool		Amount of time caller waits before connection timeout is sent	
- 📄 DerbyPool	Connection Validation		
- OCNet-devpool	connection valuation		
🕨 📄 JMS Resources	Connection Validation:	Required	





Configuring GlassFish: JMS

	JIDI Name	1 ∔
	Edit JMS Connection Factory ins/DSBQueueConnectionFactory	
	Editing a Java Message Service (JMS) connectic jms/IndexMessageFactory	
	Load Defaults	
Glassfish Message Beans	General Settings JNDI Name: jms/DSBQueueConnectionFactory Pool Name: jms/DSBQueueConnectionFactory Type javax.jms.QueueConnectionFactory Description: Status: Chabled Deel Settinge	
	Initial and Minimum Pool 8 Connections	
	Minimum and initial number of connections maintained in the pool	
	Maximum Pool size: 32 Connections Maximum number of connections that can be created to satisfy client requests	
	Pool Resize Quantity: 2 Connections	
D	Number of connections to be removed when pool idle timeout expires	
Destination Resources (2)	Idle Timeout: 300 Seconds	
B New Delete Enable Disable	Maximum time that connection can remain idle in the pool	
JIIDI Name 14 Enabled 14 Res	source Max Wait Time: 60000 Milliseconds	
jms/IndexMessage true javax	Amount of time caller waits before connection timeout is sent	
jms/DSBIngest true javax	ax.jms.Queue	

Resources > JMS Resources > Connection F

Connection Factories (2)

New...

Delete

Enable

Disable

👁 Sun

8

8

Configuring GlassFish: Mail Sessions

Sun Java™ System A	pplication Server	Admin Console								
Web Applications	Applications Resources > JavaMail Sessions > mail/hotifyMailSession									
- EJB Modules	Edit JavaMail Session									
- 🛅 Connector Modules	A JavaMail session resource represents a mail session in the JavaMail API.									
- 🛅 Lifecycle Modules	Load Defaults	oad Defaults								
Application Client Modules										
– 🤵 Web Services	General Settings									
T 🛅 JBI	JNDI Name:	mail/potifyMailSession								
- 📄 Service Assemblies	Mail Host:									
Components		DNS name of the default mail server								
Shared Libraries	Default User:	dataversenotifu								
- 🔊 Custom MBeans		User name to provide when connecting to a mail server; must contain only								
🔻 🎦 Resources		alphanumeric, underscore, dash, or dot characters								
V 📄 JDBC	Default Return Address:	do-not-reply@vdc-build.hmdc.harvard.edu								
▶ 📄 JDBC Resources	Deparintion	E-mail address of the default user								
- 📄 jdbc/TimerPool	Description.	Makes it easier to find this session later								
- jdbc/CallFlowPool	Status:									
jdbc/default										
jdbc/VDCNetDS	Advanced									
► 📄 Connection Pools	Store Brotopoly									
- CallFlowPool	5016 F100000.	imap Either IMAP or POP3: default is IMAP								
- 📄TimerPool	Store Protocol Class:									
- E DerbyPool		Default is com.sun.mail.imap.IMAPStore								
VDCNet-devpool	Transport Protocol:	smtp								
🔻 🚅 JMS Resources		Default is SMTP								
Connection Factories	Transport Protocol Class:	com.sun.mail.smtp.SMTPTransport								
— 🚅 jms/DSBQueueConne		Default is com.sun.mail.smtp.SMTPTransport								
_ 🚅 jms/IndexMessageFa	Debug:	Enabled								
🕨 📄 Destination Resource	Additional Properties (0)									
▶ 🖂 JavaMail Sessions	Add Property Delete Pro									
— 🖂 mail/notifyMailSession										
▶ 🛄 JNDI	Name	Value								

Setting E-mail notifications to users





Developing and Deploying our Application

- We use NetBeans 5.5.1 as our development environment.
- In Development, we deploy the EAR file into GlassFish through NetBeans.
- In Production, for deployment we use ANT scripts generated by NetBeans.







Our Production (Beta)

- The IQSS Dataverse Network is hosted at Harvard.
- OS production: Linux
- GlassFish Version: v2-b41
- Thousands of users once it's in full production.
- Any researcher, department or center can create their own "dataverse".

The Institute for Quantiative Social Science	IQSS Dataverse Netwo A social science research data a	rk 🐨
IQSS Dataverse Network		powered DATAVERSE by the NETWORK ^{TY} PROJECT
Home About Help SiteMap ContactUs	Log in	
Search All Dataverses		
Advanced Search Search Help Search: Cataloging Information V For:	Search	Create Your Own Dataverse Are you interested in having your on-line archive? Send a
Browse Dataverses		request to Create your own Dataverse. Or find out more about how to create and use a dataverse before sending a request.
Center for Survey Research (UVA)		
Dan Koretz		
 Gary King International Studies Quarterly 		
Jameel Poverty Action Lab		
Murray Research Archive		
🕨 🗐 Rosalind Chait Barnett		









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	Cataloging Information Stud	ty Files			Download data files and
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	Study Global Id	hdl:1902.1/00915			Adolescent Health Care Evaluation Study, 1984-1991
	Authors	Felton I Farls			Cataloging Information Study Files
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Admin Functionality

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Collection by Assigning Studies

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Assign Studies to Collection:

then add studies to the collection.

1) Choose studies from an existing collection: Murray Research Archive (Visible)

Choose a parent: -Another Collection 🔽

🕧 Here you can define a collection by selecting studies and assign them directly to the collection. First, select studies from an existing collection or search for studies, and

V Select



For More Information

- This Friday at 12:10!
 - TS 4656: Harvard's Dataverse Network: A JSF/EJB 3.0 Technology Data Sharing Solution on Java EE 5
- IQSS Dataverse Network at:
 - http://dvn.iq.harvard.edu/dvn/
- Dataverse Network Project Site:
 - http://thedata.org/
- Gary King, "An Introduction to the Dataverse Network as an Infrastructure for Data Sharing":
 - http://gking.harvard.edu/files/dvn.pdf



DEMO

IQSS Dataverse Network





GlassFish in Real Life: Peerflix.com

Cyril Bouteille

CTO Peerflix, Inc. http://www.peerflix.com





Peerflix: the DVD Trading Community

Why rent when you can own?

- Created a vibrant community around movies to:
 - Discover DVDs
 - Connect/converse with other members
 - Trade the DVDs you have for ones you want
- Offering Peer-to-Peer DVD trading service



How does the Peermailer work?

 Pre-printed postage (no stamp needed) Send DVDs without the case All you need is a printer, paper & tape Barcodes track through U.S. Postal System

≥Sun

Early-stages of Peerflix

- Peerflix started in 2004 with an ASP.NET web site
- Growth to 300k members led to scalability issues:
 - Complexity => longer TTM for features
 - Traffic => reduced availability @ peak times
- In 2006, a new platform was needed:
 - Extensibility to add features + expand in new markets
 - Horizontal scalability to support traffic growth
 - Low cost of ownership and operation
 - Evolution vs. Revolution?



Growth through a next-generation Enterprise Java platform

Not Invented Here

- Complete re-architecture of the web site using Java EE & open-source technologies:
 - Software redesign with JSP/JSF, EJB3 & JDO2
 - Glassfish V1 UR1 / SJSAS 9.0.1 PE
 - Solaris 10 on AMD-based X Fire servers
 - Kodo Java Data Objects on MySQL 5 Database
- Peerflix V2 launched on December 18th, 2006
 - A 6-month project with a team of 8 engineers
 - PR brought 360% increase in traffic volume
 - New platform was stable with no unplanned downtime

Why Glassfish? Why open-source?

- No licensing costs for development and production use
- Affordable production support options
 - Integrated from server to JVM and Operating System
- Ahead in Java EE 5 compliance
- Strong vibrant community with active forums
- Low-maintenance w/ easy to use admin tools
- Clean and coordinated server architecture



DEMO

http://www.peerflix.com



GlassFish in real life

Deployment Stories http://blogs.sun.com/stories

