



Axis into ict



WebLogic in 250 Seconds

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Agenda



- Some notes up front
- Considerations
 - Operating System
 - Java Virtual Machine
 - WebLogic Deployment
- Automation
 - Preparation
 - Ansible

Some Notes Up Front



- Load
 - the number of concurrent sessions, that are measured as, for example, the number of transactions and requests per a certain time span
- We have to determine the performance capacity of a particular configuration and specify the resources that are required to sustain a specified load
- A first step would be to determine the load a single processor can handle, by setting up a test environment that uses the application and load

Some Notes Up Front



- Scalability
 - transaction rate measured on a CPU
- Two types
 - Vertical scalability - percentage gain per additional CPU
 - By running a series of tests in which CPUs are added gives insight in the vertical scalability characteristics of the system
 - In this case the back-end systems (such as database resources) must be properly tuned as well such that they do not skew the results
 - Horizontal scalability - percentage gain per additional server
 - Provides fail-over capabilities

Some Notes Up Front



- Safety margins
 - High availability requirements
 - If the system must cope with failures, such as losing a server, the environment must be sized such that the load can be handled
 - Usually this means that servers must not run at their peak, there must still be a safety margin, when one of the servers fails

Considerations: Operating System



- Packet loss minimization
 - The operating system buffers must be large enough to handle incoming network traffic while the application is paused during garbage collection
- Maximum number of open file descriptors
- TCP/IP
 - On some systems the default value for the time wait interval is too high and needs to be adjusted
 - When the number approaches the maximum number of file descriptors per process, the application's throughput will degrade, i.e., new connections have to wait for a free space in the application's file descriptor table



Considerations: Java Virtual Machine

- Code Compilation
 - The code actually executed can be very different than the code that you write
 - But does it need to be tuned?
- Garbage Collection
 - Is much better than you may think
 - Will find all dead objects
 - Is much worse than you may think
 - Does not mean you can not have memory leaks
 - Some tweaks are mandatory
 - Free memory
 - Garbage collector scheme



Considerations: WebLogic Deployment

- Handling failures
 - Session fail-over
 - Migration (whole server or service)
- Thread pool (work managers)
- Overload prevention
- Resources
 - Data source connection pooling
 - Java messaging
- Data caching
 - Linear scalability (share nothing clusters)

Automation: Preparation



- Decide what to use as the automation tool
 - Should not be something for which we have to rig an entire environment
 - The language used by the tool must be understandable for administrators
- Develop scripts
 - Parameterization
 - WebLogic Scripting Tool

Automation: Ansible



- Unlike Puppet, Ansible manages machines in an agentless manner
- Ansible is decentralized
 - It relies on existing OS credentials to control access to remote machines, it uses OpenSSH for transport
- Ansible's goals are foremost those of simplicity and ease of use
- A superb example can be found in the following link
 - <http://middlewaresnippets.blogspot.com/2015/03/fun-with-ansible.html>

