Interoperability and Reliability

Ivan Tashev
System Test Team Lead
Agenda

- **Microsoft® Application Center Interoperability**
  - Goals
  - Approach
  - Major products and technologies
  - Tips and tricks

- **Application Center Reliability**
  - Stress tests to prove reliability
  - Office Stress
  - Lab stress – good farms
  - Lab stress – bad farms
Interoperability
Why interoperability

- Interoperability is a key requirement for us to be successful
- Application Center is some kind extension of the platform
- We share the same market segment and the same customers with the other products
- Don’t break the user code!
Interoperability

Goals

- To prove interoperability with:
  - Products of Microsoft .NET Enterprise servers group
  - Microsoft technologies
  - Third party products

- To go through customer configurations and scenarios
Interoperability Approach

- Setup order scenarios
- Environment & requirements (hotfixes, products) evaluation
- Functionality (feature by feature approach)
- Upgrade/transition
- Build complex end-to-end scenarios
Interoperability

Clients layer

Web cluster

Application Center web cluster + Commerce Server

Intranet layer

Database backend

BizDesk cluster

BizDesk clients

SQL Server™ + OLAP services

Clients, mix of scenarios
Interoperability

Enterprise 1: Buyer organization

Enterprise 2: Seller Organization

Servers, mix of scenarios

Application Center cluster + BizTalk Server

SQL Server

.NET Enterprise

Commerce Server 2000

BizTalk Server 2000

Host Integration Server 2000

Exchange 2000

Site Server 3.0 and Commerce

seller system simulator
Interoperability

- .NET Enterprise
- Commerce Server 2000
- BizTalk Server 2000
- Host Integration Server 2000
- Exchange 2000
- Site Server 3.0 and Commerce

Diagram:
- Clients layer
- Web layer
- Components layer
- Database backend

- Clients, credit/debit scenarios
- AC2K web cluster + HIS installed
- AC2K CLB cluster + COMTI
- Mainframe database
Interoperability

Clients layer | Web front end layer | Exchange layer

Clients, mix of scenarios | Application Center web cluster + Outlook® web Access installed | Exchange 2000 server

.NET Enterprise

Commerce Server 2000

BizTalk Server 2000

Host Integration Server 2000

Exchange 2000

Site Server 3.0 and Commerce
Interoperability

.NET Enterprise

Commerce Server 2000

BizTalk Server 2000

Host Integration Server 2000

Exchange 2000

Site Server 3.0

Clients layer

Web layer

Database layer

Clients, mix of scenarios

Application Center web cluster + Site Server 3.0 installed

SQL server Database + OLAP services installed
Scenarios:
- Coexisting of the web cluster boxes
- Connectivity with the backend

Results:
- SQL Server 7.0/2000 can be installed on the web cluster machines
- No breaks in connectivity with the database backend
- Potential problems with the user code due to the newer MDAC
Interoperability

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**Scenario:**
- Oracle client installed on the web cluster boxes
- Connectivity with the backend Oracle server
- Credit/debit transactions

**Results:**
- Oracle client can coexist with Application Center
- No breaks in connectivity with the database backend
Scenario:
- Deployment of new content to the controller, member and virtual IP

Issue: Using local account causes “Access denied” in some cases

Results/resolutions:
- No problems deploying new web content to the controller, member and using virtual IP
- Use domain based accounts
Interoperability

- **Configuration:**
  - Application Center web cluster with Cold Fusing Server installed

- **Scenarios:**
  - Open CFML pages
  - Access database backend from CFML

- **Results:**
  - Install Cold Fusion first, then Application Center
  - Cold Fusing CFML engine runs successfully in AC cluster environment
  - Request Forwarding should be ON for preserving the state
Interoperability
Tips and tricks for clustering your app

Evaluation:

● Define the target configuration:
  - single layer web cluster or
  - two layer configuration (web and component cluster)

● Evaluate compatibility with existing systems/procedures for:
  - Deployment, monitoring, load balancing

● How cluster aware is the software you use:
  - Do not use local configuration files
  - Do not keep the state locally
  - Do not use local accounts
  - Store the data on external database server

● Can all COM components be registered as COM+ components?
Interoperability
Tips and tricks for clustering your app

Transition:

- First separate the database backend!
- Verify database backend connectivity with AC installed (MDAC!)
- Create single node cluster
- Which are the components that have to be replicated
  - Web sites
  - COM/COM+ components
  - Registry settings
  - Files and directories
- Create AC application, register the resources
- Start to add members
- Test! Test! Test!
Interoperability

Results

- No open issues with Microsoft .NET Enterprise servers
- Easy workarounds for some known caveats
- Set of tips how to use the products in AC cluster environment
- More info? -> Chapter 14 of Application Center Resource Kit
Reliability

Why reliability

- Reliability? Availability? What is this?
- This is a key requirement for 24/7 working software
- Application Center increases the reliability of web sites, but should be reliable itself
- The way to prove reliability is stress testing
- Operational profiles:
  - File content
  - Web load/scenarios
  - Exploitation cycle
Reliability
Stress tests to prove the reliability

- **Office stress**
  - Heavy load, lack of resources
  - High frequency of normal scenarios
  - Large configurations/web sites/components
  - Simultaneous execution

- **Lab stress – good farms**
  - To model the real exploitation cycle
  - To compress the time exactly 15 times

- **Lab stress – bad farms**
  - To test the robustness of the product
  - To prove the correct behavior in case of failures
  - Failure injectors: CPU, memory, disk, net Off/On, process killer, services stopper
Reliability

Stress tests results

- 600+ bugs found, investigated and fixed
- 650,000 hours of office stress for the shipping cycle
- 200+ machines in office stress before shipping
- 250,000 hours of lab stress for the shipping cycle
- Proven reliability of Application Center