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Product Implementation Training (PIT)

FileNet Content Manager 5.2.1 GA

Multi-domain Support

Introduction

- Course Overview
  - 5.2.1 Multi-domain Support
- Target Audience
  - Support Teams and Lab Services
- Suggested Prerequisites
  - Existing GCD Structures
- Version Release Date
  - November 2014

Course Objectives

After this course you will be able to:

- Understand the different hosting options
- Describe what a multi-domain configuration is and how it varies from a traditional hosting solution
- Create a tenant domain
- Operate within a tenant domain

Course Roadmap

- ➔ Multi-domain Purposes
- Functional Overview
- Demonstration
- Course Summary

Multi-domain Purposes (Goals)

- Provide a foundation upon which a cloud hosting provider can implement a multi-tenant solution
- Allow the hosting provider to support multiple independent organizations (i.e., tenants) each operating an independent ECM solution, on a shared set of (hosted) servers
- Provide ability to achieve complete security isolation between tenant domains
- In select on-prem customer environments, allow an on-prem customer to act as a hosting provider for multiple business units within their own company

  Note: This functionality is primarily intended for the cloud provider scenario. While there may be use cases for multi-domain configurations for on-prem customers, this option is not recommended for most on-prem customer scenarios. As a result, the ability to configure a multi-domain installation is purposely hidden – as are standard API constructs for creating tenants

  - For most customers with a need to support multiple business units, hosting multiple virtualized P8 domains on shared hardware continues to be the preferred approach

Multi-Domain Purposes (Limitations)

- There is no throttling mechanism to prevent one tenant domain from using a disproportionate amount of resources (memory, CPU cycles, threads, database connections, etc.)
  - So, there are no guarantees of “fairness" that the CPE server can provide. One tenant domain could starve all other tenant domains.
  - As a result, multi-domain configurations are primarily suited to more narrow applications where the solution does not expose the full capabilities of the CPE API's
  - Note that the approach of multiple virtualized P8 domains on shared hardware does provide the ability to limit the resources used by any tenant domain, and hence that remains the preferred approach
- All tenant domains will share the same software and, as a result, be at the same software/schema levels. So patches, fix packs, and upgrades will impact all tenant domains simultaneously
- The model requires one organization (either a cloud provider, or a customer IT shop) to act as a "hosting provider" – with each tenant domain being the responsibility of the hosting provider
- There is no ability for existing domains to be converted into a multi-domain configuration. The only way to get a multi-domain configuration is to create a new one
- While a partially multi-tenant solution can be built with the CPE multi-domain capability, multi-tenant versions of ECM applications (i.e. Content Navigator, Case Manager, Enterprise Records) are required to build a fully multi-tenant solution.

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Functional Overview

To achieve the required security isolation between tenants, it was clear that the best approach for separating tenants was for each to be contained in their own domain. However, some resources will remain "owned" by the provider, resulting in the concept of a domain type consisting of Standalone Domain, Master Domain and Tenant Domain values.

Standalone Domain (DomainType = 0)

- Today's domain. All domains, by default, are standalone domains.
- A Standalone Domain cannot be reconfigured to a Master Domain – and vice versa.

Master Domain (DomainType = 1)

- Controlled by the hosting provider and enables the ability to create instances of CmTenant
- Besides this additional ability, there are no differences between a Standalone Domain and a Master Domain
- The ability to create a master domain via Configuration Manager is not enabled by default and is intended for cloud providers only. Customers wishing to use multi-domain configurations for their on-prem installations should first consult with IBM support to determine if MD is a good fit

Tenant Domain (DomainType = 2)

- Created when an instance of CmTenant is created in the Master Domain
- Although primarily self-contained, some domain-level resources are materialized (and "read-only") from the Master Domain and are not actually stored in the Tenant Domain (details on next slide)
- Upon creation, the tenant domain is populated with a single directory configuration instance consisting of that of the master directory configuration.

Functional Overview (Cont)

CmTenant

- Represents a tenant (and its domain)
- Lives in the master domain / GCD
- Requires DB Connection and schema name.
- Upon creation of a CmTenant instance a tenant domain is created under the covers in the database of the DBConnection property under the specified schema.
- All DB resources of tenant must share the same DBConnection (on tenant) and consist a schema that is prefixed by the tenant schema

Master Domain resources materialized in Tenant Domains

- Topology-based resources: Sites, VirtualServers, ServerInstances
- Server resources: Subsystem Configuration Objects (tracing, thread pool controls, timeouts, etc.), Text Search Services, Content Cache Areas
- Database resources: Database Connections, Rendition Engine Connections

Hybrid sharing:

- Master domain AddOns are available for installation in Tenants
- Tenants can also create their own AddOns
- AddOn retrieval will show both Master and Tenant addOns in the same results
- Master AddOns are read-only

Functional Overview (Cont)

Tenant Domain – post-creation

Addressing a tenant

- Tenant domains can be addressed via a simple query extension to the existing URI - ?tenantId={<tenant_symbolic_name>|<tenant_id>}
- Examples:
  - iiop://Bodega.sebtown.com:2809/FileNet/Engine?tenantId=BSBooks
  - http://Bodega.sebtown.com:9080/wsi/FNCEWS40MTOM?tenantId={25B14BA6-08C6-4AD5-865E-20D78A3CC7B1}
- Once addressed there is no functional difference between master and tenant domains with the exception of some read-only enforcement on attempts to update master-materialized GCD objects

Directory Configuration

- Tenant Domain is created with master domain directory configuration
- Service provider can then create a Directory Configuration object reflective of the tenant's LDAP
- If Tenant is not comfortable providing that information, provider can setup a temporary user from the provider's directory with appropriate permissions. Tenant then uses that user to setup its DirectoryConfiguration and provider deletes temporary user once complete
- In a cloud provider scenario, a separate DirectoryConfiguration would always be created for each tenant domain. In an on-prem scenario, this may or may not be necessary

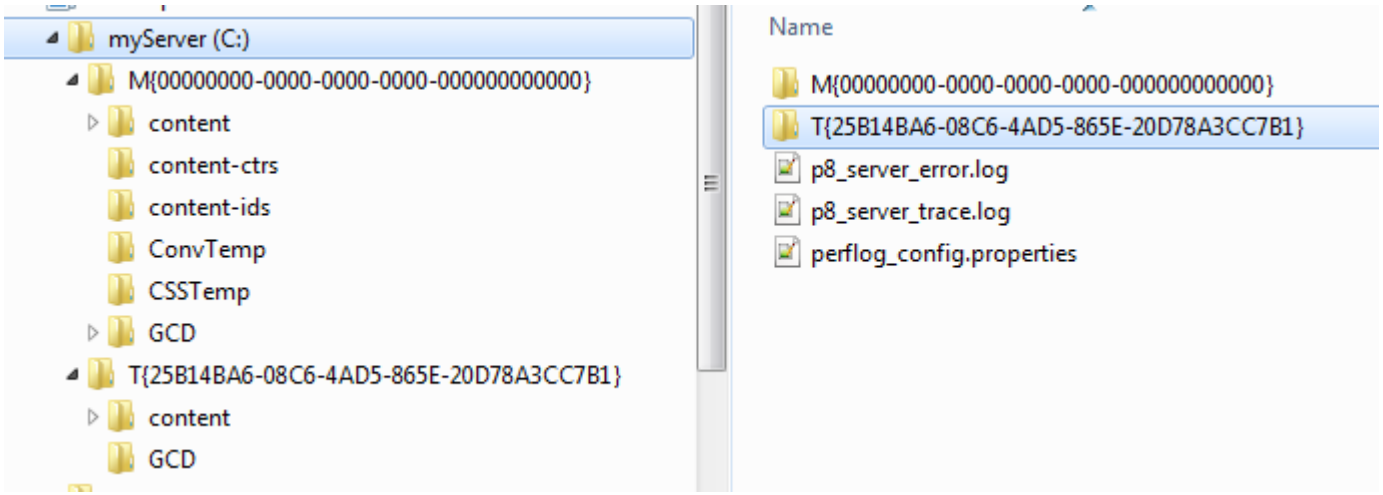
Functional Overview (Cont)

Monitoring Tenant Usage

- Although there are no fairness mechanisms implemented across tenants, the PCH counters have been extended to indicate tenant containers

FileSystem Structure

- Very similar to today's structure except that GCD and Content storage locations are housed under domain-specific folders
- Master files are stored in the M{<zero-guid>} folder
- Tenant files are stored in the T{<tenant_id>} folders
- P8 logs remain where they are today and are considered resources of the provider



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Demonstration

The ECM Hosting Company currently has just a single tenant – BS Books. They've recently secured a subscription from a new tenant – Burnside Brewing. Burnside Brewing – a fledgling brewery in Northern California is just getting off the ground and needs a Marketing ObjectStore.

ECM Hosting Company needs to create a tenant to represent Burnside Brewing, handle the setup of a DirectoryConfiguration specific to Burnside Brewing and hand operations off to its Burnside Brewing's administrator – which will then create the Marketing ObjectStore.

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Product Help/Documentation/Resources

Multi-domain Scenario

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.planprepare.doc/p8ppi265.htm

Tenant Resource Usage Counters

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.sysmgr.admin.doc/p8pdb146.htm

Contacts

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