ENOVIA Training
Foils

LCA Administration Advanced (1)

Introduction to CAA V5 / RADE

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Introduction to CAA V5 - RADE

Objectives of the Course

In this course, CAA V5 will be introduced as the mainstream current development effort of Dassault Systemes. Its motivation, its technology and its architecture will be explained.

Targeted audience

ENOVIA V5 Programmers

Prerequisites:

CAA V5 Programming

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Planning

In this course, we will explain the motivation to introduce the RADE Tool.

- **CAA V5**
- **RADE Objectives**
- **CAA-RADE Packaging V5R10**
- **CAA V5 Documentation**

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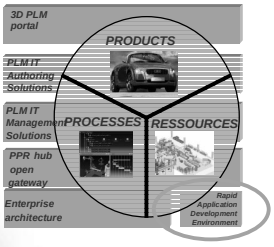
CAA V5

You will see the CAA V5



- **3D PLM Strategic Foundations**
- **CAA V5 Business Value**
- **CAA V5 Fundamentals**

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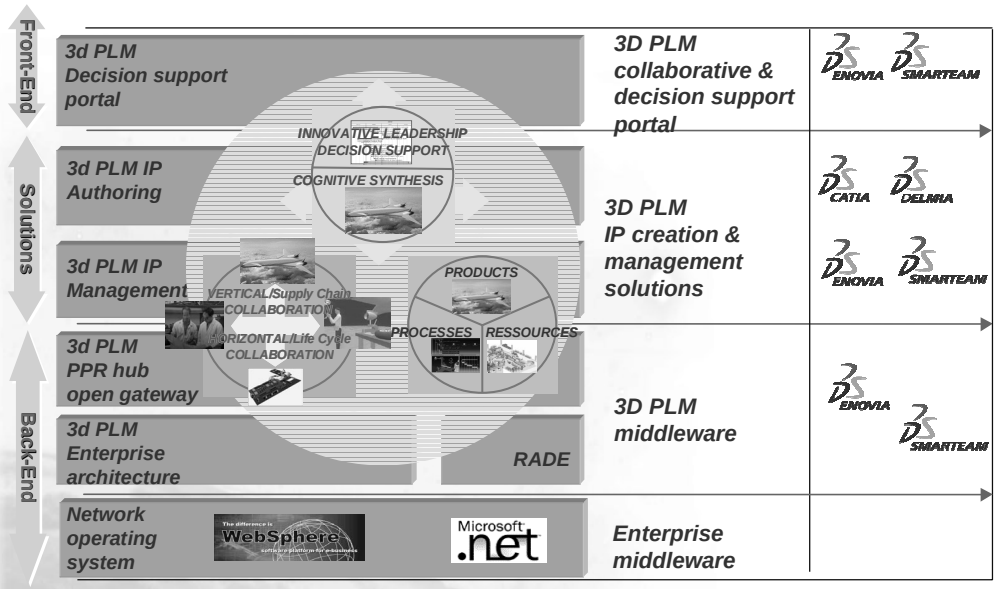
3D PLM Strategic Foundations



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CAA V5 Business Value

Openness and extension through component based architecture and community.

- **CAA enables DS partners to extend the 3D PLM applications portfolio**
  - **for extended vertical industries and process support**
  - **For extended discipline support**
- **CAA enables 3D PLM customers to build added-value applications to fulfill their company-specific needs**
- **CAA enables Service Companies to implement best practices on top of DS 3D PLM solutions.**

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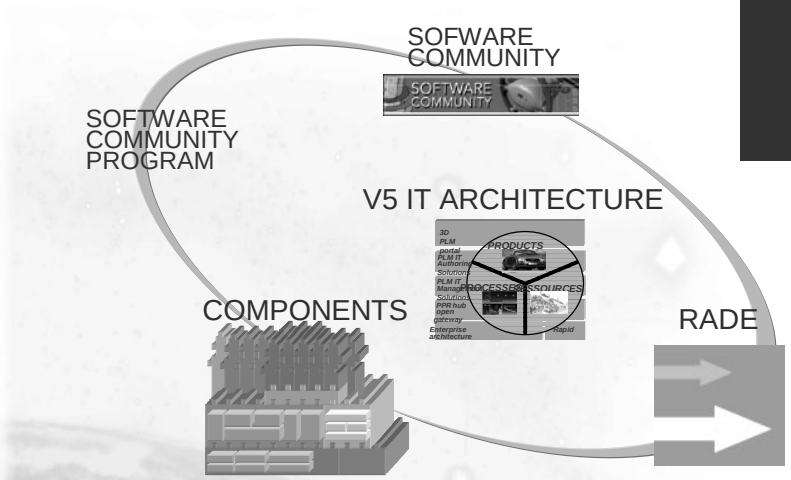
CAA V5 Fundamentals

« The most modern environment for third-party Developers » – CAD Report July 2001h



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RADE Objectives

You will see the RADE Purpose

- **RADE Functionalities**
- **RADE Highlights for Development Speed**
- **RADE Role**
- **Client/Server**

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RADE functionalities

- **Provide Users with a a Rapid Application Development Environment to create a unique, competitive system federating enterprise expertise :**
  - **Create IP Portals, IP Authoring & IP Mgt applications**
  - **Extend PPR Model**
  - **Connect PPR hub to Legacy, CRM, SCM, ERP applications**

- **Generate Web Applications in a few hours thanks to:**
  - **Interactive software development tools built on top of best-in-class de facto standard RADE tools**
  - **Integrated software development tools covering the full software development lifecycle coverage**
  - **Single source software development tools**
  - **Concurrent software development environment**
  - **Software development tools adapted to different customer's profiles**

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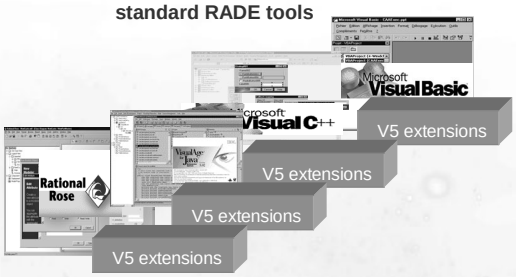
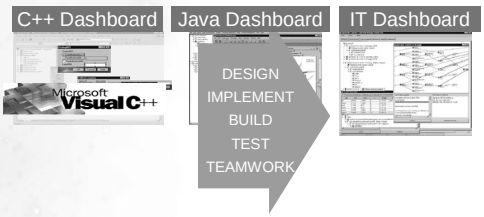
RADE Highlights for Development Speed

- **interactive software development tools built on top of best-in-class de facto standard RADE tools**



- **integrated software development tools covering the full software development lifecycle coverage**



- **single source software development tools**

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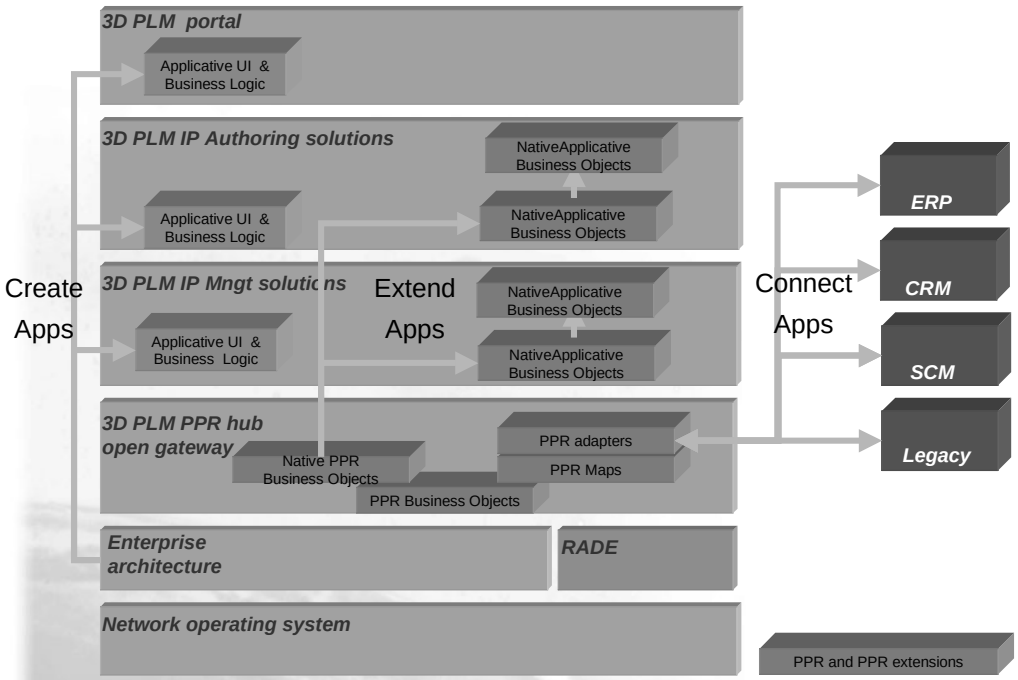
RADE Role



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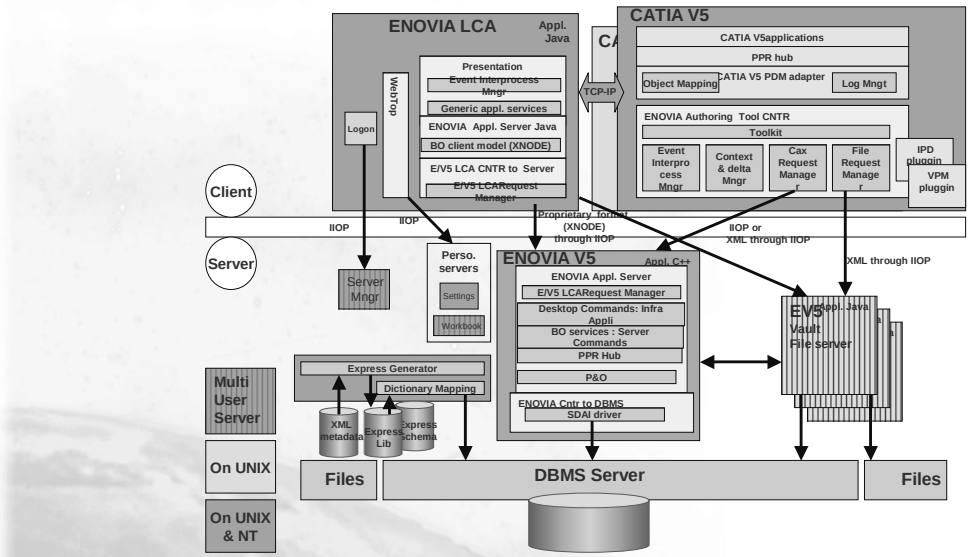
Client/Server

3 Tiers Architecture



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CAA -RADE Packaging V5R10

You will see the RADE Porfolio and Configurations

- Outlines
- RADE Packaging matrix
- RADE Products
- CAA – Data Model Customizer
- CAA – C++ Interactive Dashboard
- CAA – Java Interactive Dashboard
- CAA – Web Application Composer
- CAA – Multi-workspace Application Builder
- CAA – C++ API Documentation Generator
- CAA – C++ Unit Test Runner
- CAA – C++ Source Checker
- CAA – Source Code Manager
- CAA – Teamwork Release Manager
- Federation Framework Multi-Tier Archi

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Outlines

RADE Packaging matrix

RADE Products

RADE Configurations

- *C++ Extended Development*
- *C++ Base Development*
- *JAVA Base Development*
- *Legacy Data Federation*
- *Teamwork Release Management*
- *Multi-Workspace Application Building*

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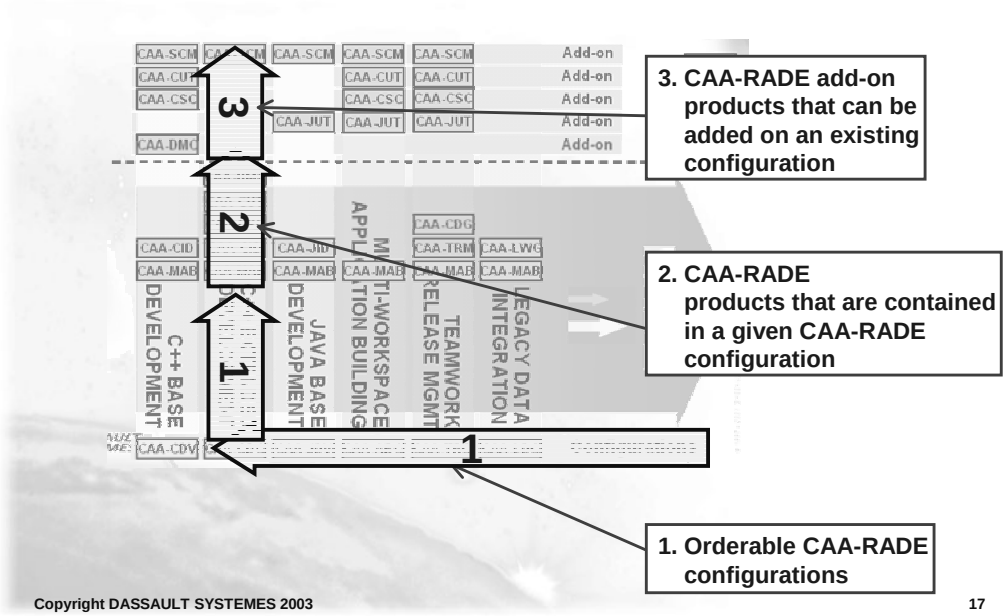
RADE Packaging matrix



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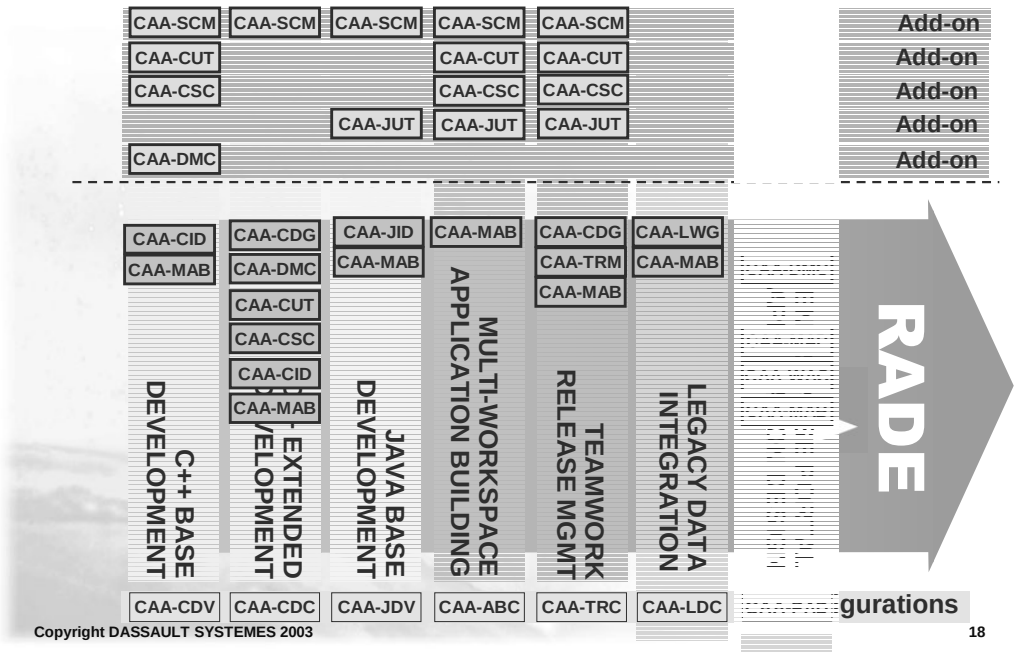
RADE Packaging matrix (Con't)



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RADE Products

From Interactive design...

- Data Model Customizer
- C++ Interactive Dashboard
- Java Interactive Dashboard

- Multi-Workspace Application Builder
- C++ API Documentation Generator
- C++ Unit Test Manager
- C++ Source Checker
- Java Unit Test Manager
- Teamwork Release Manager
- Source Code Manager

...to Product delivery

TEAMWORK..QUALITY..DESIGN & IMPLEMENT

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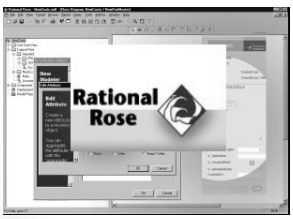
CAA – Data Model Customizer (CAA-DMC)



- Extends Rational Rose with V5 plugins
- UML modeling for V5 modeling object
- Automatic DB publishing
- Extend Product Structure, Document Management, Action modelers, ECR,ECO and Configuration (Category and Specification) and new object from scratch
- Inter-release data migration for extended LCA modelers

V5R10 and below...

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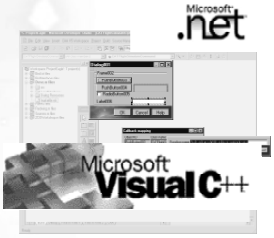
CAA - C++ Interactive Dashboard (CAA-CID)

- Extends Microsoft Visual C++ with V5 plugins
- UNIX support from Windows
- Interactive help on V5 source code
- SCM, CUT, DMC, MAB integration
- Interactive event customization wizard
- Interactive User Exits wizard

V5R10 and below...



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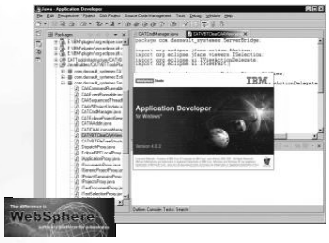
CAA – Java Interactive Dashboard (CAA-JID)

- Extends IBM WSAD with specific V5 plugins
- Maps V5 file file tree to an IBM WSAD project
- Package view
- SCM, MAB integration

V5R10 and below...



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CAA – Multi-Workspace Application Builder (CAA-MAB)

- Multiple workspace, multiple platform compilation and linking Windows session
- UNIX/NT/2000/XP
- Access to multiple compilers inc. C++, JAVA, Automation IDL

V5R10 and below…

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CAA – C++ API Documentation Generator (CAA-CDG)

- Automatic C++ API documentation generation from tags in headers
- Generated documentation includes:
  - Index file
  - Interfaces & class documentation attached to their framework
  - Framework list

V5R10 and below…

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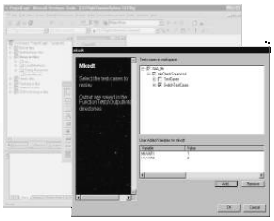
CAA – C++ Unit Test Runner (CAA-CUT)

- Batch test objects automatic replay
- Memory management and runtime error checking:
  - Rational Purify required
  - Windows NT/2000 only
- Enable test coverage computation
  - Rational coverage required
  - Windows NT/2000 only

V5R10 and below…



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CAA – C++ Source Checker (CAA-CSC)

- Automatic check of C++ V5 coding rules
- Potential memory leaks identification
- Full HTML report
- Direct URL access to faulty source line

V5R10 and below…

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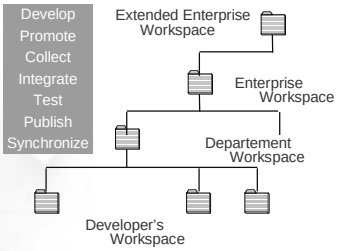
CAA – C++ Source Code Manager (CAA-CSM)

- Version and configuration control on any data type
- File from/to database mngt:
  - promote, collect, publish, sync
- Hierarchical workspace integration
- Automatic code merging support
- Collaborative and distributed across:
  - Sites
  - OS platforms (UNIXes/NT)

V5R10 and below…



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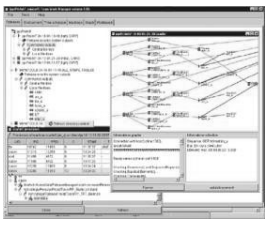
CAA – Teamwork Release Manager (CAA-TRM)

- Automatic and manual release management
- Launch of synchronous tasks over a multi OS network
- Single front-end interface
- Release tasks reporting features
- Schedules release operations through calendar function

V5R10 and below…



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CAA – Web Application Composer (CAA-WAC)

- Limited Availability product from V5R9 included

V5R10 and below…

- Web Application Composer enables business analyst or non-developpers to build visually and interactively user interfaces for composite applications and leverage entrerprise applications connectivity across disparate data source
- This product will also provide equivalent functions than those existing in WEB Application Generator for legacy database (LWG)
- This product also include the Collaborative Schema mapper which enables business analyst or non-developpers to map existing data schema into a globalor federated data schema

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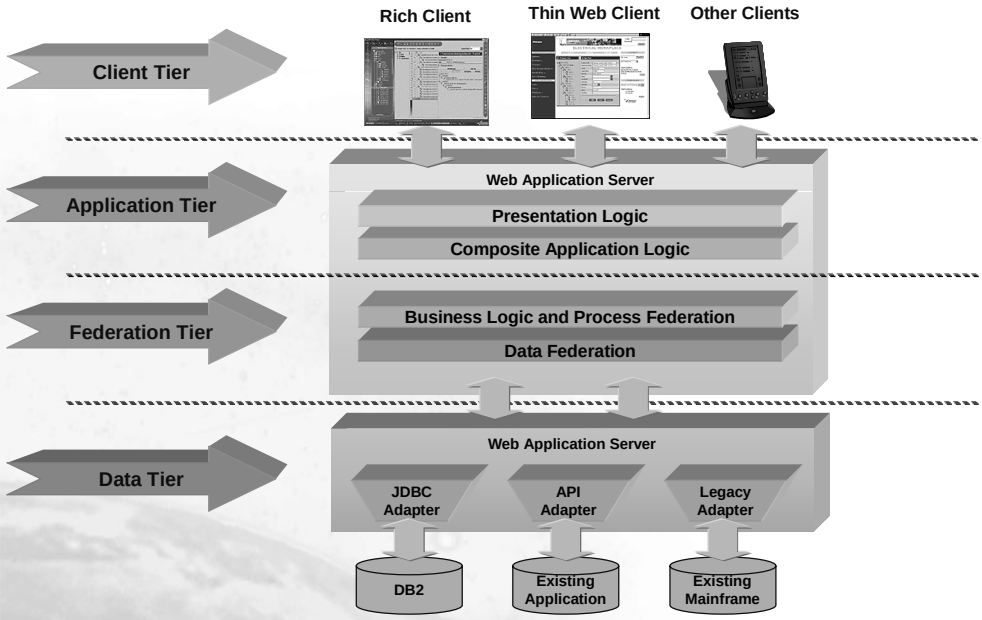
Federation Framework Multi-Tier Archi (1/2)



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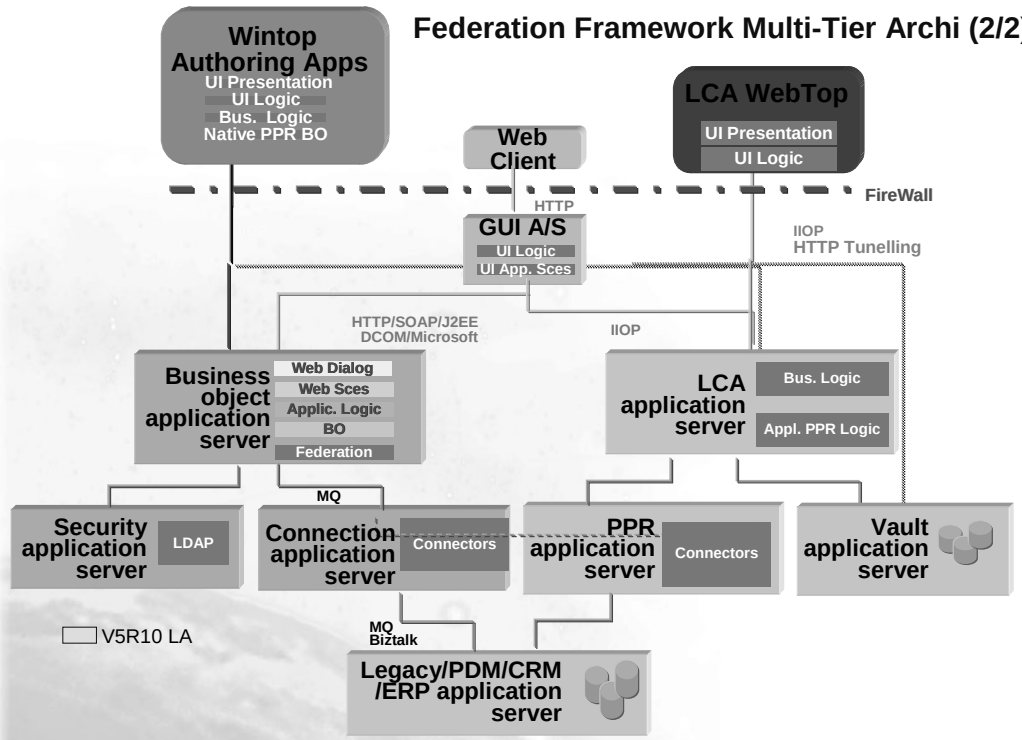
Federation Framework Multi-Tier Archi (2/2)



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CAA V5 Documentations

You will see the API documentations

- CAA V5 Encyclopedia
- Use Cases

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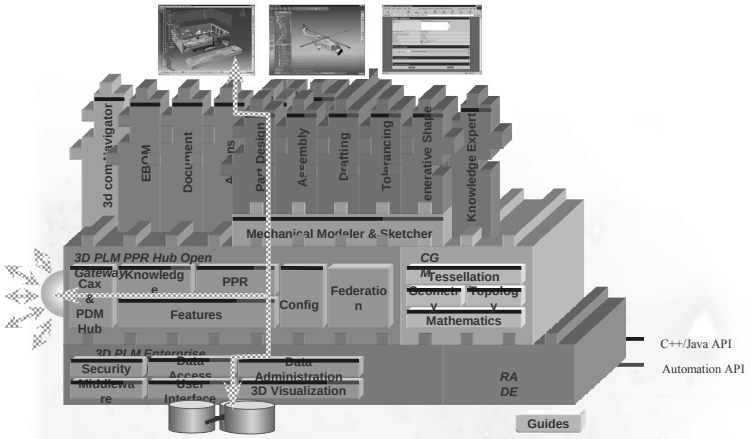
CAA V5 Encyclopedia



- Accessible to all profiles, from Automation developer to experienced C++ and JAVA developer
- Packaged per product and configurations
- Multilevel components

- The Documentation is available on the UNIX CD under the CAADoc directory
- The Documentation is also accessible on the WEB under http://www.caav5.com
  To get access to this documentation, you must have a RADE licence on your machine (CDC,CDV)

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Use Cases

Enterprise Architecture

- Create and visualize 3D custom representations
- Create workshops, workbenches, addins
- Create interactive commands
- Create Dialog boxes
- Create bidirectionnal communication channel between DS applications and legacy, ERP, CRM, SCM applications
- ...

3D PLM PPR Hub Gateway

- Define new features and store them in a catalog
- Instantiate features in an applicative container of a document
- Extend feature data and behaviors
- Update an entire network of inter-related features
- Import existing components as product instances
- Browse a product structure and applicative data under a product
- Retrieve the types of activities associated with a document
- Create an activity structure
- Define assembly operations sequencing
- Browse the items and resources attached to an activity
- Reuse knowledge parameters to benefit from unit management and knowledge tools
- Create relations between between knowledge parameters
- Extend the knowledge language with a custom computation
- Create and modify the 3D geometry and topology of an object
- Integrate external curve and surface representations
- Visualize geometry and topology using tessellation
- Federate legacy, ERP, CRM, ERP data in DS applications
- ...

3D PLM Portal

- Developing a driver
- Developing a browsing driver
- Creating a CATIet
- Creating a Command
- Creating a Command Header
- Sending a PortalURL
- Receiving a PortalURL
- Using the PortalRegistry
- ...

3D PLM IP Authoring

- Customize a manufacturing tool editor
- Customize a toolpath computation on an axial operation
- Customize a tool query in a user tool database
- Generate a catalog of user defined NC operations
- Reuse user defined design features in axial operations
- Browse a toleranced model, retrieve types and values of geometrical dimensions and tolerances. retrieve geometry on which the tolerance is applied to.
- Create a text annotation associated to a geometry from an interactive command
- Import a motion created in a dynamics software within the Digital Mock-Up
- Program a robot with motion created in the Digital Mock-Up
- Compute inertia of a vehicle built in an immersive environment
- Customize drafting tools to comply with enterprise standards and methodologies
- Automatically check and certify a drawing
- Create and edit part design features
- Create and edit shape design or wireframe features
- Create a user defined shape design or part design features by composition of existing featiures
- Open a product document, navigate across geometry, create connectors and constraints
- Manage electrical objects in a schematic context
- Define electrical sytem specifications
- Navigate on a 3D harness network
- ...

3D PLM IP Management

- Navigate in a Business Object Part
- Manage Links
- Subscribe to a login session event
- Declare, instantiate, andsSend an event
- Automatically subscribe to a session opening
- Publish Streams
- Create a vault document from a file
- Extract a vault document into a file
- Create a vault document from a memory area
- Extract a vault document into a memory area
- Name an action at creation time
- Create a command attached toan action graph
- Create a condition attached to an action graph
- Add Business Rules to a command
- Adding Business Rules to an object
- Create a document
- Navigate a document
- Manage document attributes
- Manage Engineering changes
- Customize import components
- ...

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To Sum Up

In this course you have seen that :

- **RADE is the tool to design, implement, build, test concurrently CATIA/ENOVIA applications**
- **Integrated in market standard tools to reduce learning cost**
- **Decrease development time**

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