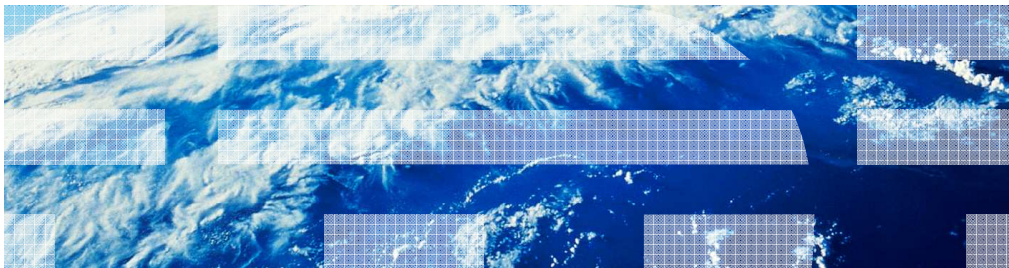IBM

IBM WebSphere Application Server Communications Enabled Applications

Overview

WebSphere software

This presentation provides an overview of the Communications Enabled Applications feature of IBM WebSphere Application Server.

Agenda

- Overview and architecture
- Features

Overview

The first section provides an overview of the goals and architecture of the Communications Enabled Applications feature, and the second section describes the key functionality to help in building communications enabled applications.

Section

Overview and architecture

Overview

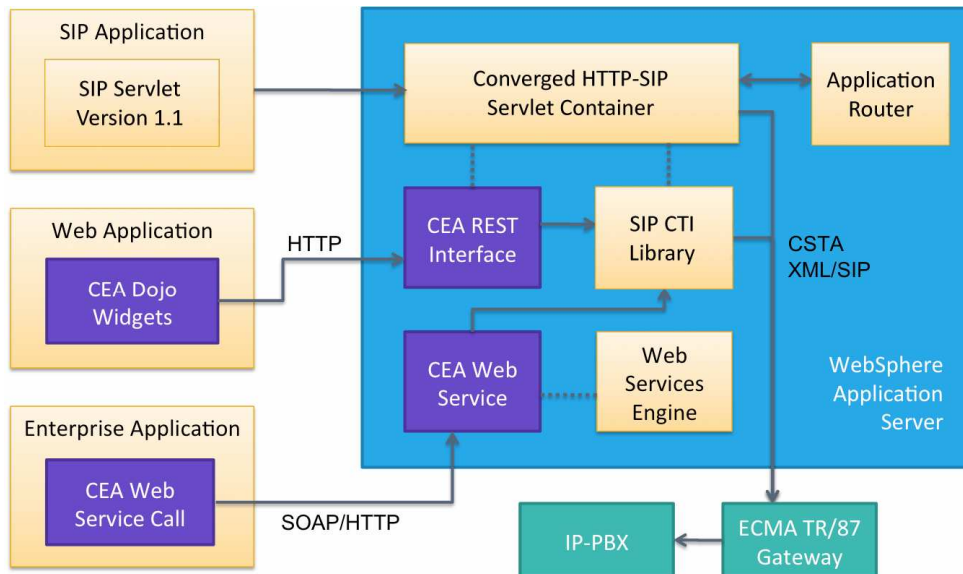This section provides an overview of the goals and architecture of the Communications Enabled Applications feature of WebSphere Application Server.

IBM

Overview

- Enable any application to quickly add communications support
- Reuse Java-based skills by hiding communications' complexity through web services and REST interfaces (widgets)
- Simplify making and monitoring calls from browser-based applications
- Session data sharing through co-browsing
- Integrate with current communications infrastructure

Overview

The goal of the Communications Enabled Applications (CEA) feature is to provide a fast path to integrate communications support into your web applications and enterprise applications. Typically, the overhead for incorporating communications and telephony services into an application requires in-depth knowledge of communications technology and the session initiation protocol. The CEA feature simplifies the development process by allowing any developer with Java skills to use standard interfaces – like JAX-WS web services or widgets created using the Dojo toolkit – to embed communication services directly into an application. These interfaces simplify making and monitoring calls from browser-based applications, and support new types of communication, like sharing session data through a co-browsing link that allows two participants to see the same content in their browsers. These communication services can be integrated with your existing applications and your current communications infrastructure.

Architecture

SIP Application
SIP Servlet Version 1.1

Web Application
CEA Dojo Widgets

Enterprise Application
CEA Web Service Call

HTTP

SOAP/HTTP

Converged HTTP-SIP Servlet Container

Application Router

CEA REST Interface

SIP CTI Library

CSTA XML/SIP

CEA Web Service

Web Services Engine

WebSphere Application Server

IP-PBX

ECMA TR/87 Gateway

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This diagram provides an overview of the Communications Enabled Applications (CEA) feature of WebSphere Application Server. The purple boxes indicate CEA functionality. CEA allows business applications to easily access communications functions. In the diagram, the enterprise application and the web application are considered to be business applications. These applications communicate outside of the application server through the SIP computer telephony integration (CTI) layer, accessing an IP-PBX through a standard ECMA TR/87 gateway. In order to use an IP-PBX with the CEA feature, it must support the ECMA TR/87 standard protocol or use an ECMA TR/87 compliant gateway. You can also use the base SIP servlet support included in WebSphere Application Server to create applications that directly implement communications functions.

Architecture (continued)
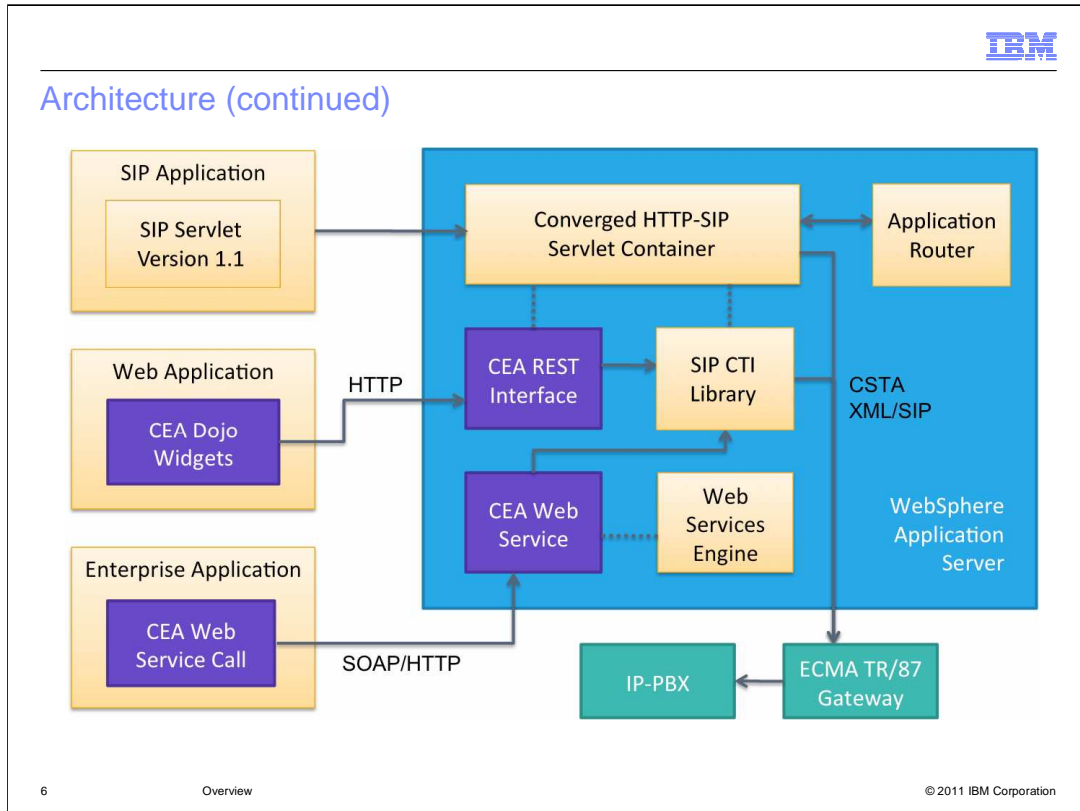
A SIP application is any application that contains a SIP servlet, including converged applications that contain both SIP and other Java EE components. Your SIP applications can be built using the functionality in the SIP servlet 1.1 specification, or JSR 289. The converged HTTP and SIP container in the application server provides JSR 289 support, which includes communication with an application router. The application router is a component under JSR 289 that provides a flexible mechanism for building end-to-end SIP services out of multiple components. It exists outside of the SIP container and communicates with the container to let it know which applications need to be invoked next in a given application chain.

Business applications can access the communications services through a REST interface or a web services interface. The web application shown in the diagram is an application that has a Web front end – for example, a WAR file or that includes Web pages. Any page in the Web application can contain new Communications Enabled Applications (CEA) widgets, built using the Dojo toolkit. These widgets provide an easy interface to telephony services – like making a call, or monitoring for a call to come in. The widgets communicate over HTTP with the CEA REST interface in the application server. The enterprise application shown here can be any application that performs operations for your business – it can or can not have a Web front end, and is typically packaged as an EAR file or a JAR file. This application might contain a call to the new CEA Web service interface, communicating with the application server using standard communication protocols, like SOAP over HTTP.

Section

Features

Overview

This section provides an overview of the features included in the Communications Enabled Applications feature, like an implementation of the SIP servlet 1.1 specification and a set of components to help integrate communications components into your existing applications, through REST APIs, web services, and widgets.

Telephony access services

- New programming model that requires no SIP knowledge to access telephony services
- Make and disconnect a call
- Receive incoming call notifications
- Access communication services using:
  – REST interface
  – JAX-WS web service
- Ability to proxy to external web service implementations
- Base services using CSTA/SIP (TR/87)

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With the Communications Enabled Applications (CEA) feature, enterprise developers do not need to have extensive knowledge of telephony or Session Initiation Protocol (SIP) to implement communications enabled applications. The CEA capability delivers call control, notifications, and interactivity and provides the platform for more complex communications. Telephony services allow you to access a unified communications environment from within business applications to increase the efficiency of processes, reduce communications errors, and optimize business interactions in real time. CEA is based on SIP-enabled services that use Representation State Transfer (REST) servlets and web services in a converged HTTP and SIP application.

The CEA feature includes a library of Dojo-style widgets for use in web applications. Dojo widgets are prepackaged components of JavaScript and HTML code that add interactive features that work across platforms and browsers. CEA widgets are extensible, allowing developers to customize them to handle more advanced tasks. These widgets provide capabilities like making and disconnecting calls and receiving incoming call notifications. Telephony access services are designed to integrate with existing communications infrastructure by communicating using standard protocols, like ECMA TR/87.

Multi-modal web collaboration services

- Support for linking two web sessions using widgets that push data across the link
- Collaboration through co-browsing, synchronized forms
  - **Example:** Co-browse enables the controlling user to highlight content in a page, and the remote user can see the highlighting
  - **Example:** Form sharing enables a customer to watch while a customer support representative fills out information about them in a form

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In addition to telephony access services, the Communications Enabled Applications (CEA) feature provides session data sharing for multi-modal web collaboration services. Multi-modal web interaction allows you to provide session linking, or shared sessions, between users browsing the same Web site from different locations. With session linking, users can interact dynamically in collaborative ways, such as co-browsing or co-shopping Web sessions, while maintaining their individual unique sessions within the server. Commerce Web sites can use this service to provide product or customer support, while protecting information on the internal site. For example, commerce sites can use the collaborative shopping experience to attract more customers to their sites. With a combination of click-to-call functionality and multi-modal interaction, you can support two-way synchronized text forms between a customer and a customer service representative. Two-way forms can be used to allow a customer and a customer service representative to fill out an online form together at the same time. This allows you to do things like verify name spelling and contact information and to be able to take over control of the form and provide sensitive information – like an identification number or credit card information – in a masked field that the customer service representative is not able to see.

CEA sample applications package

- IP-PBX application
  - Use for unit testing
- Enhanced version of Plants By WebSphere Ajax Edition
  - Showcases the CEA call notification, click-to-call, and co-browse, and collaboration widgets built with Dojo technology
- web services sample
  - Sample application showing how to use the web services interfaces to the CEA communication services

You can use the Communications Enabled Applications (CEA) samples package to get started quickly. Some type of private branch exchange, or PBX, is needed in your testing environment to allow calls to connect. In a production environment, most users will use specialized PBX hardware for this purpose. To make it simpler to set up a testing environment, the CEA samples package includes an IP-PBX application that you can deploy to your application server and use in your testing. This PBX application is a sample and should not be used in production.

The CEA samples package also includes two sample applications that illustrate how to build and use many of the CEA components. The Plants By WebSphere application is a standard Java EE sample application included with WebSphere Application Server. The version provided in the CEA samples package has been enhanced to include widgets for telephony and collaboration. The application includes full source code so that you can see examples of how to embed the CEA widgets. The web services sample is a simple, stand-alone sample that illustrates how to access communications services using the CEA web service interface. This sample also provides full source code to help you in understanding the CEA web services programming model.

CEA samples packaging

- Download the CEA samples package from the WebSphere Application Server Samples site
  - http://www14.software.ibm.com/webapp/wsbroker/redirect?version=matt&product=was-nd-mp&topic=welcome_samples
- All sample applications are located in the installableApps directory of the package
- Package includes basic installation and usage information
  - Detailed instructions are available in the WebSphere Application Server information center

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You can download the Communications Enabled Applications (CEA) sample applications package from the WebSphere Application Server Samples site. All sample applications are located in the installableApps directory of the package. The package also includes basic installation and usage information. Detailed instructions are included in the WebSphere Application Server information center.

Section

Summary

This section contains a summary of this presentation.

Summary

- The Communications Enabled Applications feature makes it possible to quickly add communications support to new or existing applications, including:
    - Widgets and web services interfaces to embed communication services
    - Multi-modal web collaboration
    - Sample applications to assist in learning the programming models

Overview

The Communications Enabled Applications (CEA) feature allows you to quickly add communications support to new or existing applications or business processes. It supports telephony services – like making calls and receiving call notifications – and multi-modal web collaboration – like sharing a view of a web page or collaboratively filling out an online form. These communications services are exposed through a REST interface, which can be accessed through CEA widgets, and through a web services interface. You do not need to have in-depth knowledge of communications infrastructure or the session initiation protocol to be able to integrate these communications services into your applications. You can also download a suite of sample applications to simplify testing and assist in learning the CEA programming models.

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