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INTELLIGENT COMMUNICATIONS

SON/SOA Application Development Environments for Enterprise Communications

IEEE GlobeCom 2008

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978-677-5232 (US)

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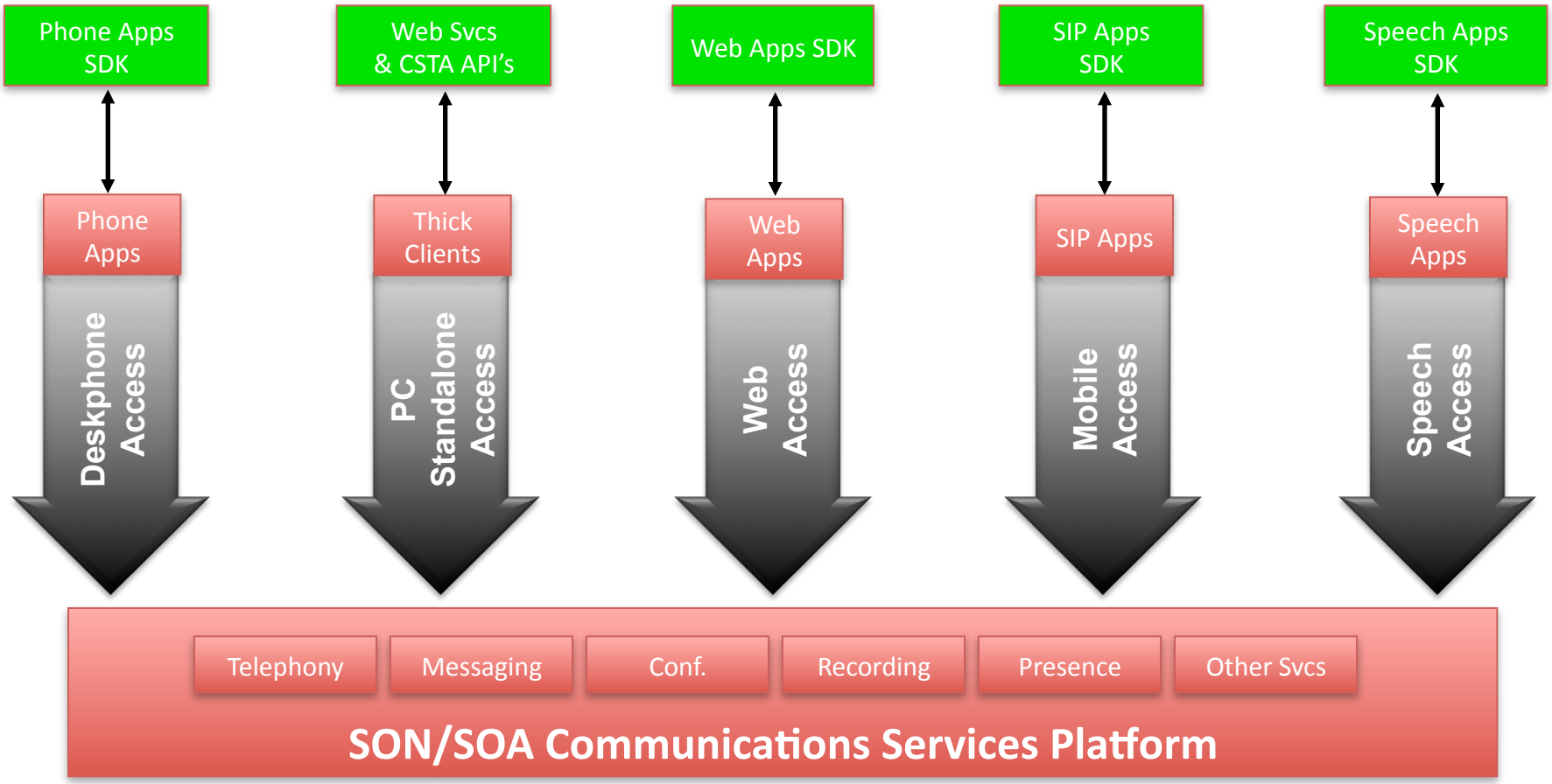
Overview: SOA Application Development

- **Business Driver:** Today, communications platform providers and service providers depend on **partners** to develop applications which subscribers use to consume provider-hosted (SOA) services
- **Provider Response**: Must enable partners by
  1. **Exposing rich services API's** using standard protocols (e.g. WS-* web services, Parlay X, CSTA, etc.)
  2. Providing Software Development Kits -- **SDK's -- that minimize partners' {time, cost}-to-market** for their applications and reduce provider's support costs
  - **Personal observation: Providers focus on (1) but often overlook (2)**
- **Key Observation**: Effective SDK's assist partners with developing applications with a given software architecture
  - vs. traditional SDK's which often just document API's
  - ***Architecture-centric*** SDK's vs. ***API-centric*** SDK's
- **This→Presentation**: How do we design and deliver effective architecture-centric SDK's for application development in the modern SOA-web-telephony context?

Step 1: Identify SOA Applications Software Architecture Segmentation

- **Segment partner developer market and SDK portfolio by application architecture type (vs. which API's they use):**
  - **Phone/Endpoint applications**
    - Example: Phone XML scripts pushed to phone browser user interface
  - **Web applications/Web Design patterns**
    - i.e., applications delivered into/accessed by web browsers
    - Example: Desktop web browser application supplementing associated deskphone
  - **Speech/Call Control/Contact Center applications (Service orchestrations)**
    - Example: Customer self-service applications (1-800-401K-PLAN) executed by CCXML/ VXML engines
  - **SIP Applications**
    - Example: Named application (1-800-RINGTONES) hosted by a (JSR 289) SIP A/S
  - **Business process/vertical integrations (API-centric)**
    - Example: Communications web services integrated with IBM Sametime or SAP
  - **Product Integrations (API-centric)**
    - Example: Call recorders integrated with IP PBXs
- **Align SDK portfolio with this segmentation**
  - Deliver best-in-class SDK's for creating phone apps, web apps, speech apps, SIP apps

Unified Communications Access Model



- In Unified Communications, a user can access all services using any application type
- Each Application type has access to all SOA communications services
- SDK's needed to build applications for each access channel type vs. SDK's for each API

SDK Case Study: Web Applications & SDK

Expected User:
Communications-enabled Operations Mgr/Agent w/real-time situational awareness

Web Browser
(IE, Firefox, etc.)

Partner Web Application

Enterprise Communications Web Application Framework

Web Container

Native API's Layer

Telephony | Messaging | Conf.

Recording | Presence | Other Svcs

JEE A/S
(IBM Websphere, Red Hat JBoss)

Partner-developed web application:
Developed as extension of Vendor-provided web application framework

Web application framework:
JSP & AJAX-based framework for creating Enterprise communications web Applications.

Web App Development Environment:
Web libraries, Development Lab configuration, IDE, sample application, Documentation, tech support

Traditional API-centric SDK's typically provide support for API Layer only

SOA Communication Services
Accessed or consumed by web applications

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Components of a Web Applications SDK (1 of 2)

- **Beyond API's for the (SOA) Services, a web applications SDK includes:**
- **Web libraries**: Estimate that 80-90% of the software for a communications web application is generic and may be provided by the vendor as a web application framework
- **Web Development Laboratory**: Developer lab configuration consisting of SOA services platform, services emulators, web server with web app framework.
  - Provide a laboratory blueprint w/detailed instructions for installation and operation; or
  - Provide hosted development laboratory so that partners do not incur laboratory overhead cost

Components of a Web Applications SDK (2 of 2)

- **IDE with web development plugins:** Recommended IDE framework -- Eclipse, NetBeans, Visual Studio, etc. -- configured with plugins for web development support (JSP, JSF, Javascript, XML, etc.)
- **Sample Application(s)**: Sample web application designed to fulfill three {roles, purposes}:
  - **Training tool:** For developers to learn the AJAX libraries and recommended architecture for telephony web applications
  - **Application template:** For use as a basis/starting point for specific application, because all of the AJAX client software for service and event consumption is already coded.
  - **Reference application:** For testing and debugging specific web applications by comparing to generic client web application which is known to be correct (hopefully!)
- **Documentation**: Concept of operations, installation and operational instructions for development lab, how to use recommended IDE configuration to make non-trivial modification to sample applications, how to extend the framework to include other (SOA) services, …

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Recapitulation

- SOA Application Enablement:
  - Adopt Partner-centric view
  - Define communication application architecture segmentation (which likely maps 1-to-1 to a partner developer market segmentation)
  - Create Architecture-centric SDK's for each segment
    - Frameworks and libraries
    - Low-cost development laboratory blueprint or hosted environment
    - IDE, plugins, and usage instructions
    - Sample applications
  - Target 10X reduction in partners' {time, cost}-to-market for their applications (vs. API-centric SDK's)
  - Target 10X increase in volume, scope, and functionality of partner-developed applications

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