CBSE Usage in Japan

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Outline

- Japanese Software Industry
- Commercial CBSE Practice
  - Fujitsu
  - Hitachi
  - NEC
- Research CBSE Project
  - Software CALS – NGSE Project
- Concluding remarks
Japanese Software Industry

- Custom software dominance
- Computer vendors provide *both* hardware and software
- Major players in the industry:
  - Fujitsu
  - Hitachi
  - NEC

Changing Trends

- Problems:
  - Cost – Building custom software from scratch is expensive
  - Time – Software development is a slow process, but the industry is rapidly changing

- Solutions:
  1. Shrinked-wrapped software package
  2. CBSE to leverage development cost and time in custom application
Commercial CBSE Example: Fujitsu

- ComponentAA – **Component-based Application Architecture**
  - Services:
    - Analysis / design methodology
    - Analysis / design tools
    - Consulting / education services
- ~140 EJB and ActiveX components

Fujitsu’s ComponentAA

- Facilitates entire software development process using components (multi-tier design)
  - Design – BRModeller
  - Implementation
    - Presentation tier – ClientJ, GKitOCXシリーズ, GKitWeb
    - Business tier – Ejbean Pattern, Business Ejbean
    - Data tier – Adjuster
  - Testing – SIMPLIA NeOtune
Commercial CBSE Example: Hitachi

- APPGALLERY – Visual CBD environment for Windows
- Rapid business application development
- Graphical interface allowing specification of connections between customizable components
- Script generation of composition code
- “no coding or typing, not even for creating program logic”
- http://www.hitachi.co.jp/Prod/comp/soft1/open-e/appgal/appgal.htm

Hitachi’s APPGALLERY
Commercial CBSE Example: NEC

- HolonEnterprise – Point-of-sales (POS) system framework
- Assembles components together
- Heavy use of mediator design pattern
- http://www.sw.nec.co.jp/product/case/ent/
Hitachi’s HolonEnterprise

Research CBSE Example: Software CALS

- Software CALS – Continuous Acquisition and Lifecycle Support
- NGSE – Next Generation Software Engineering Project
  - Component specification and distribution
  - Component composition using visual tools
  - Interoperability across multiple distributed object environment
  - Web-enabled interoperation between client and server components
  - Security of application integration over VPN
Software CALS’s SCL

- SCL – Software Specification and Commerce Language
  - An HTML/XML language for component specification language
  - Upward compatible with IDL
  - Design to handle the specification and trade of components over the Internet
Concluding Remarks

- Advanced CBSE development in Japan
- Culture as a driving force in software development trends in Japan
  - Groupism and national pride
  - Local development and custom software
  - CBSE to leverage cost of custom software
  - Slow spread of technology outside the country
- Small vendors as a hindrance to CBSE acceptance in Japan