SCO Forum 2006

MOBILITY EVERYWHERE ›

Presentation Title: Building Applications for the EdgeClick Framework
Presenter’s Name: Jonathan Schilling
Session ID: 105

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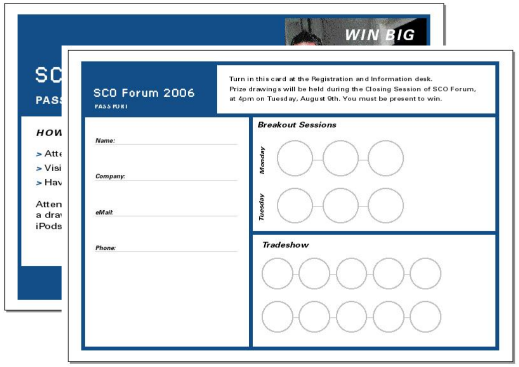
- Be sure to get your Passport stamped.
  - Get your passport stamped
    - By breakout session instructors
    - By exhibitors in the exhibit hall
  - Turn in your Passport
    - After the last breakout session on Wednesday
    - Drawing for great prizes for Wrap-up Session

- Remember to complete the breakout session evaluation form, too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SCO Forum 2006
PASSPORT

Turn in this card at the Registration and Information desk.
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Breakout Sessions

Monday ○ ○ ○

Tuesday ○ ○ ○

Tradeshow

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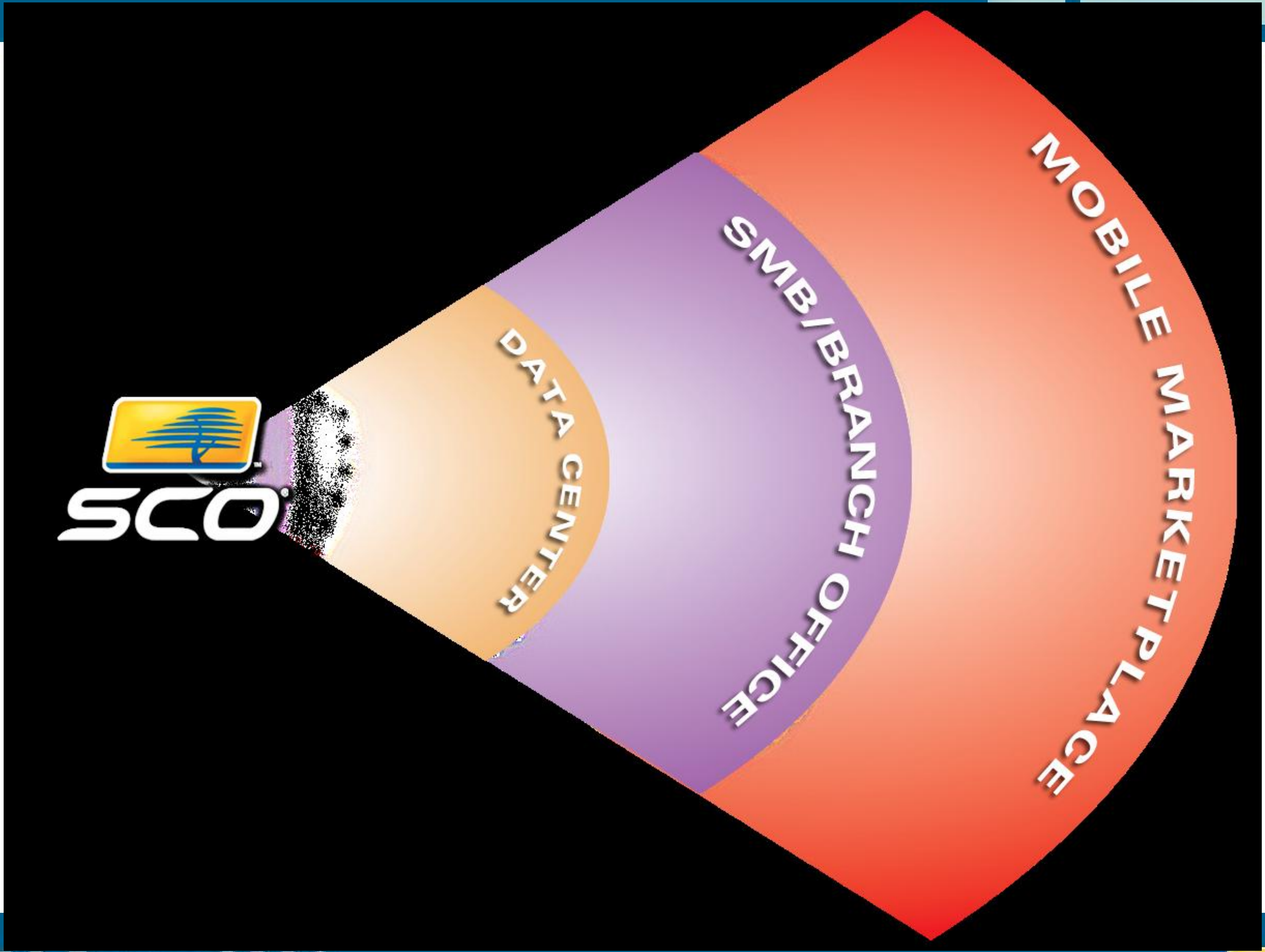
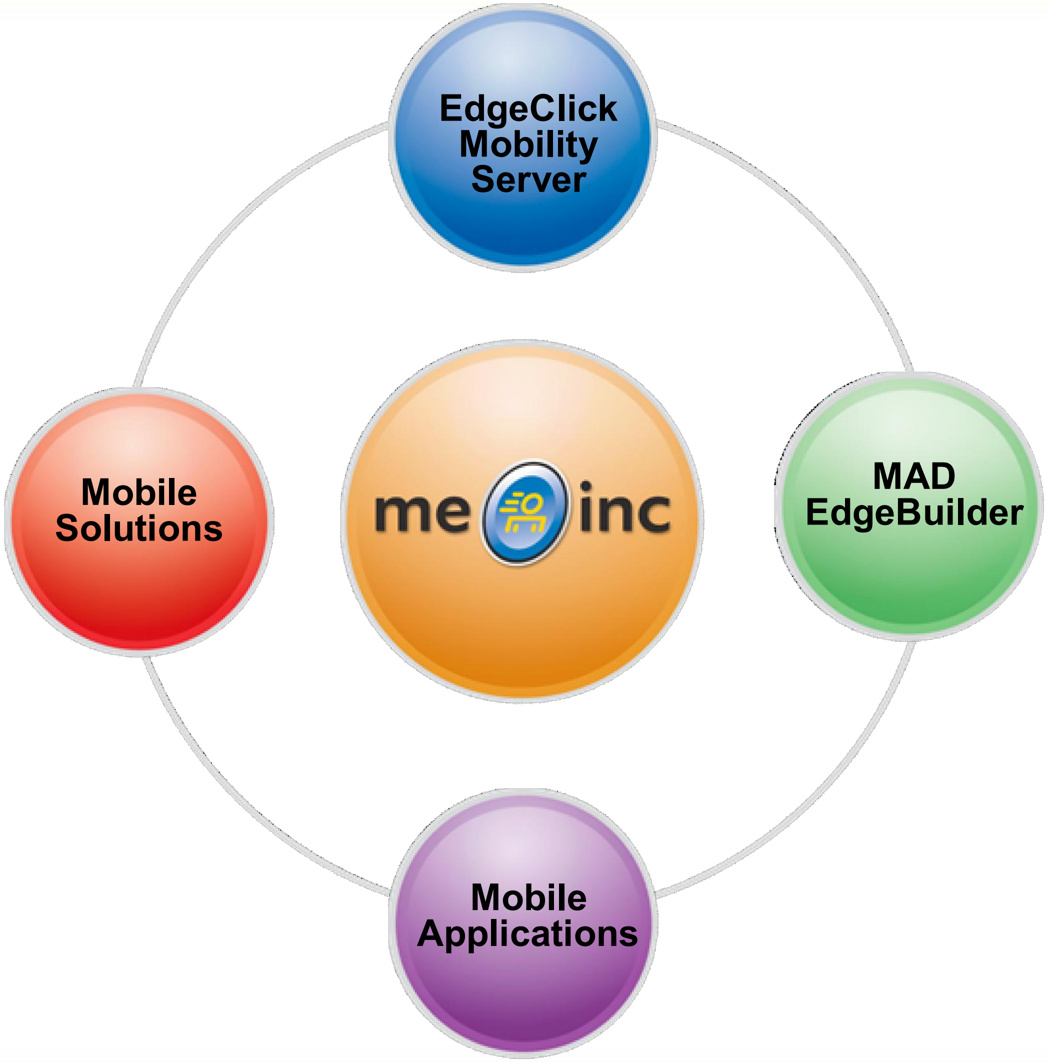
SCO Automates Transactions



Me Inc. – Mobility Everywhere



Goal

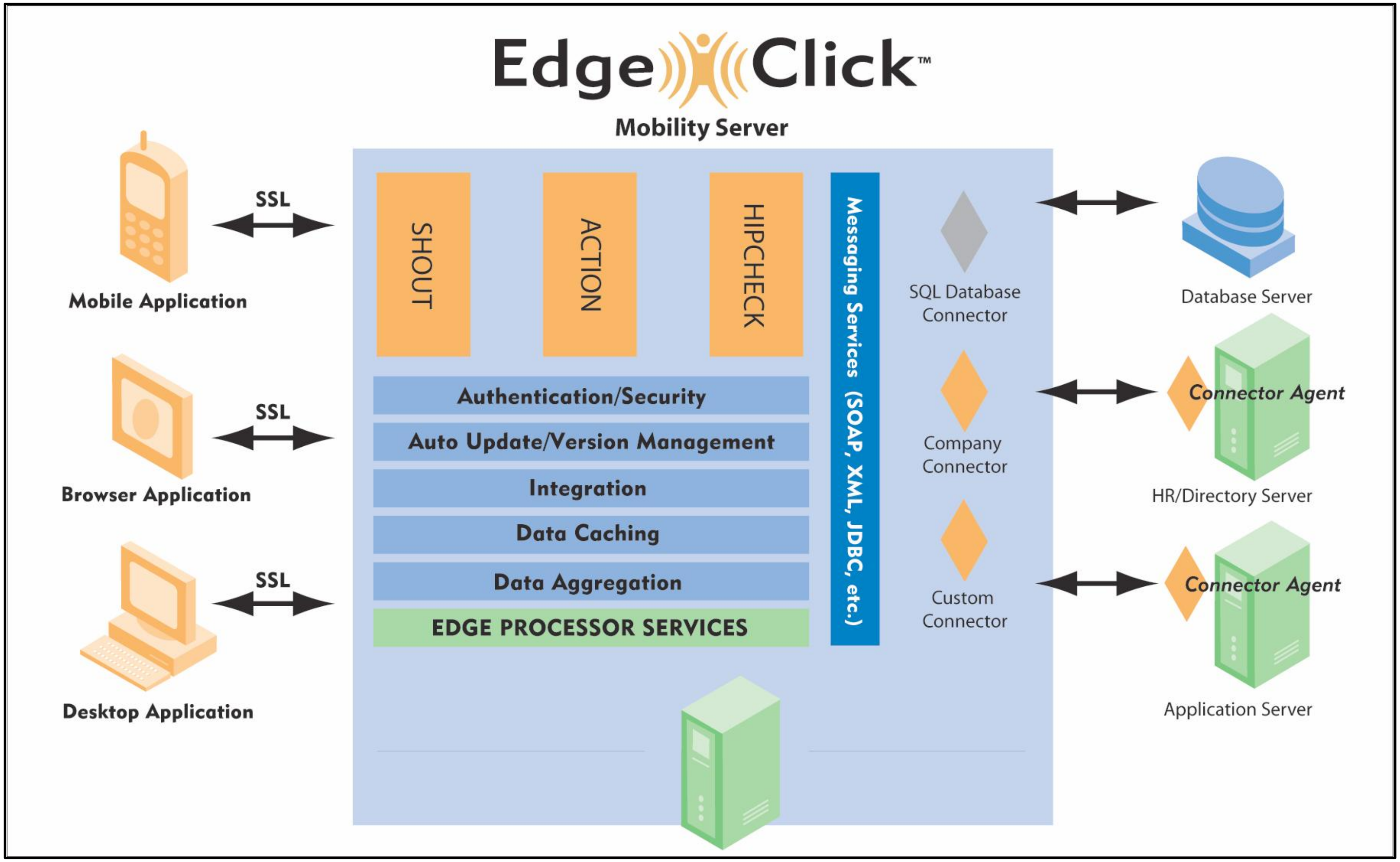
- This is an introduction to EdgeClick development
- “The Big Picture”
- Covers types of EdgeClick applications and how to approach designing them
- Mentions other topics which other breakout sessions will handle in more depth

EdgeClick™

Contents

- Components of an EdgeClick mobile digital service
- Different types of EdgeClick mobile digital services
- How to design EdgeClick mobile digital services
- Technologies used in EdgeClick mobile digital services

EdgeClick Architecture



EdgeClick Architecture Components

- Client part of service
  - Smartphones, PDAs, some regular phones
  - Web browsers
  - Native PC desktops
- EdgeClick Processor (Mobility Server) part of service
  - Service processor
  - Web admin pages
  - Local database
- Back-end integration part of service
  - Connectors
  - Agents

EdgeClick Architecture Tools

- EdgeBuilder
  - The SDK for EdgeClick
    - a/k/a “MAD”
  - Provides libraries of reusable building blocks
  - Provides plug-ins and templates for popular IDEs
    - Visual Studio for Mobile
    - NetBeans
    - Eclipse
    - Sun Wireless Toolkit

Design questions about the architecture

- These are a lot of components
  - Are all of them always necessary?
  - Which are the “primary” components?
- Where to start when creating a new service?
- Which tools to use?

Types of EdgeClick Mobile Digital Services

- Self-Contained Service
- Business Integration Service
- Monitoring Service
- Mobile Database Service

Self-Contained Service

- A new application
  - Does not connect to existing application
  - No agents necessary
- Subscriber-centric
  - Also groups, contacts, etc.
- Most logic on EdgeClick Processor
- Stores application data in ECP database
- Will often not need web admin pages
- Can be tied to “landing pages”
- Examples: Shout, Vote, Action, MIGS

How to design a self-contained service

- Understand EdgeClick *ITeam* semantics
  - Accounts, domains, subscribers, groups, contacts, etc.
- Design EP database schema
- Design client-to-EP flow
  - UI forms on client
  - Client-to-EP commands/parameters interface
  - XML returned to client

Business Integration Service

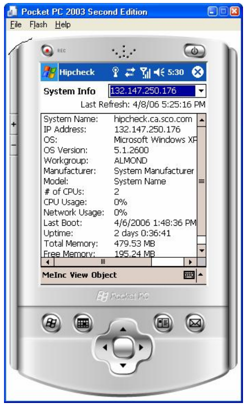
- Connects to existing application
  - Therefore, has connectors or agents
- Purpose is data collection, data reporting, transaction processing
- EdgeClick Processor service is mostly a “switch”
  - ECP database mostly just used for routing
- Application is client- and agent-centric
- Has web admin pages to manage agents
- Examples: Musco Foods, Carlamobile, Meter

How to design a business integration service

- Decide what existing application functionality will be exposed to mobile device
- Design client-to-agent flow
  - The ECP is really just a relay switch here
- Determine where agent should go and how it should be written
- Design small ECP database schema
  - Identify/authenticate subscribers in app terms
  - Direct subscribers to appropriate agents

Monitoring Service

- Specialized variant of business integration service
- Tracks vital business and system metrics
  - View health indicators of business or system
  - Receive alerts based on user-set triggers
  - Take actions to correct problems
- Combines SOA with EDA
- Examples: HipCheck (for Operating Systems)



System Info 132.147.250.176

Last Refresh: 4/8/06 5:25:16 PM

System Name: hipcheck.ca.sco.com
IP Address: 132.147.250.176
OS: Microsoft Windows XP
OS Version: 5.1.2600
Workgroup: ALMOND
Manufacturer: System Manufacturer
Model: System Name
# of CPUs: 2
CPU Usage: 0%
Network Usage: 0%
Last Boot: 4/6/2006 1:48:36 PM
Uptime: 2 days 0:36:41
Total Memory: 479.53 MB
Free Memory: 195.24 MB

How to design a monitoring service

- Imitate HipCheck!
- Design agent services first
- Design client UI to watch/set alerts/take actions
- EP service is a straightforward relay
- Web admin pages also follow straightforwardly
- Coming – "Generic Heartbeat", which allows building monitoring services rapidly by just coding agents to a specified interface

Mobile Database Service

- Keep full application database on mobile device
- Periodically synch with back-end server
- Very client-centric
- Examples: “Big Indian Government Project” – mobile local census info

How to design a mobile database service

- Select mobile device that meets requirements
  - Memory card size
  - Media capture capabilities
  - Programming technology good at files, database
- Service is clearly client-centric
- EdgeClick Processor role may be minimal

Variants on Mobile Database Service

- All sorts of data capture are possible
- Biometric input devices with generic interfaces
  - e.g. fingerprint scan
- All sorts of synchronization protocols with ECP and/or back-end servers are possible
- With immediate relay, resembles business integration service

Client Development Environments: EdgeBuilder SDK

- Windows Mobile .NET/C#
  - Four OS subvariants
  - Treo 700, Samsung 730i, …
  - Visual Studio for Mobile - best dev env and functionality
    - EdgeBuilder template
  - EdgeBuilder SDK provides library for account mgmt, ECP communication, etc.
  - Client apps will also run on PC Windows with some rearrangement

- Java Micro Edition
  - Many variants (even in MIDP 2.0)
  - Many phones, many phone OSes
  - Portability can be difficult to achieve
  - Subset functionality for cross-phone support
  - EdgeBuilder SDK provides library for account mgmt, ECP communication, etc.

Client Development Environments: Other

- HB++
  - Treo 650 and PalmOS
  - Best-looking UI
  - Programming can be difficult
- SuperWaba
  - Java variant for high-end phones
  - Good-looking UI, good portability
  - Little known, support questionable
- AJAX
  - Conventional web browsers
  - cf. WebFace, Google
- Others
  - C++ variants
    - Symbian, BREW
  - Python
  - Etc.
  - Anything that can do http name/value pairs can be used, but no direct EdgeBuilder SDK support …

EdgeClick Processor Service Development Environment: EdgeBuilder SDK

- OS neutral
  - EdgeBuilder currently on Windows XP
- Java based
- Service processor
  - Uses Java app server infrastructure
    - Was Tomcat, now JBoss, later who knows
    - Should be almost completely transparent to application code
      - Java custom annotations used to isolate infrastructure dependencies
    - Don’t have to be a general J2EE expert!
- Web admin pages
  - Spring with Tapestry
  - More flexibility coming …
- “Commons” libraries
  - Data object layer, database common to both service and admin
  - Use whatever you like … EJB3 Persistence, Spring/Ibatis, native Ibatis, JDBC …

Technologies for Connectors

- Connectors run on EdgeClick Processor
  - Communicate directly with existing back-end system
  - Use for pulling in subscriber/group info from HR DB
    - Alternate *ITeam*/*IAccount* source
  - Some applications or database products provide direct web service access
  - Use direct WS, JCA, JDBC, ftp … may avoid agents
  - Firewall issues
  - Solution will be unique to each customer/partner/application/technology

Technologies for Agents

- Agents run on an existing back-end system
  - Agent access is by SOAP/XML-based web services
    - Supported by many OSes, languages, tools
    - SCO Unix provides in Java, C, C++, Perl, PHP
  - Expose apps as services, write database code as service, construct intermediary flat file or mini-db …
  - Firewall issues
  - Solution will be unique to each customer/partner/application/technology

Why not …
use phone browser as the client?

- Characteristics of phone browsers
  - Tend to poor presentation layout
  - Can be unreliable
    - Treo 650 Blazer, for example
  - Can be slow
    - Full page refreshes, no state
  - Difficulty in accessing phone features
    - Camera, fingerprint scanner, voice recorder, etc.
  - Difficulty in maintaining local data
    - EdgeClick supports local data, encryption, store-and-forward

Why not …
go directly from client to back-end server?

- This can be done as a one-off …
- But loses many services that EdgeClick provides
  - Common user, group & account model
  - Common authentication
  - Common https transaction processing
  - Common data caching, store-and-forward
  - Common load balancing, scalability, reliability
  - Common connectors and agents framework
  - (Optional) subscription-based billing model
  - Ability to have apps invoke other apps as services

Summary

- EdgeClick supports building several different types of mobile digital services
- Same tools, libraries, methods, and deployment platform are used for all of them
- Superior to other approaches for mobilizing applications
- Visit other EdgeClick breakout sessions to learn more about each component

Q & A