

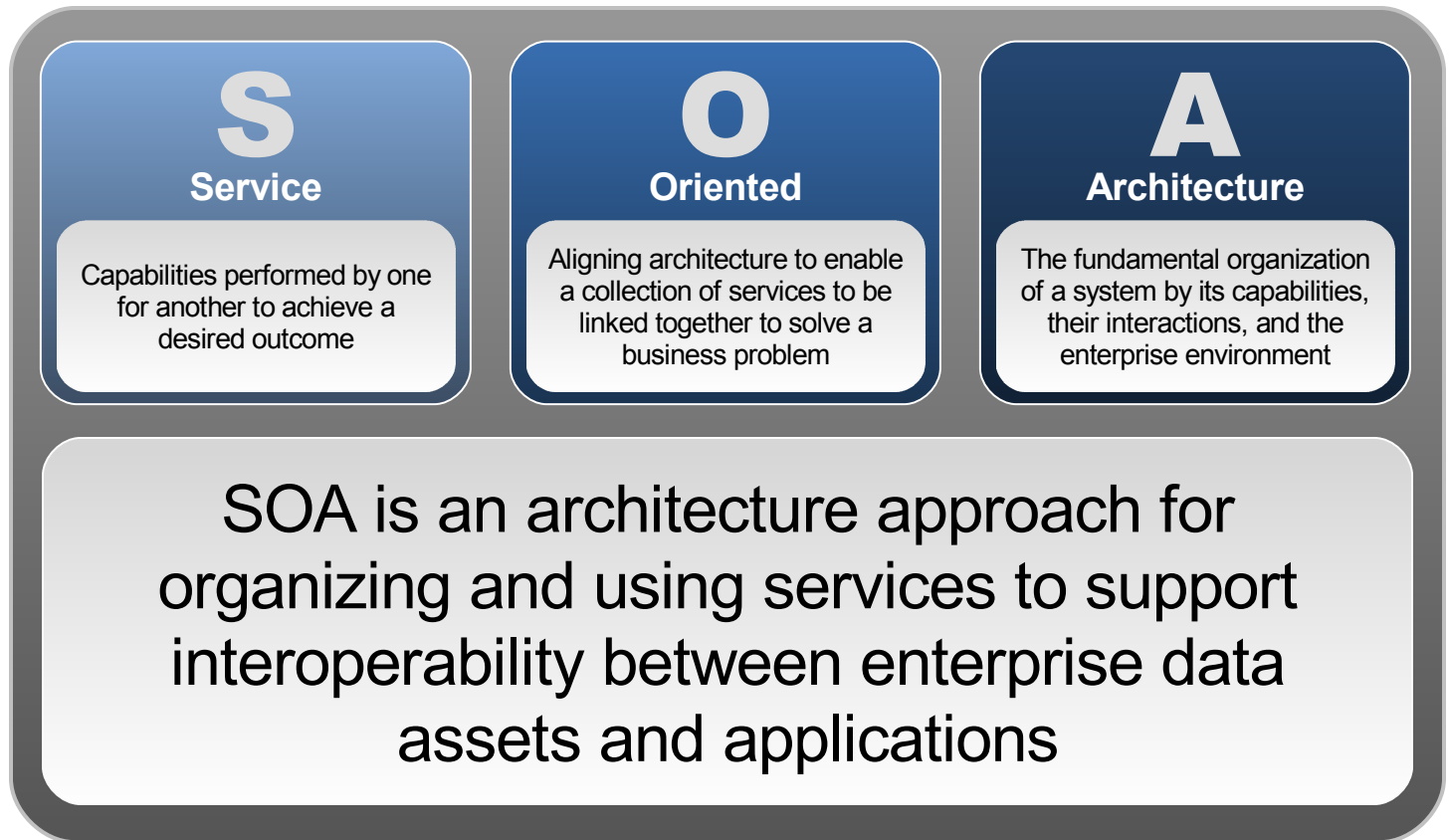


BJA Regional Information Sharing
Conference – Implementation
Strategies and Emerging Standards for
SOA

Presented by Kael Goodman

Minneapolis, MN
March 28, 2007

What is SOA?

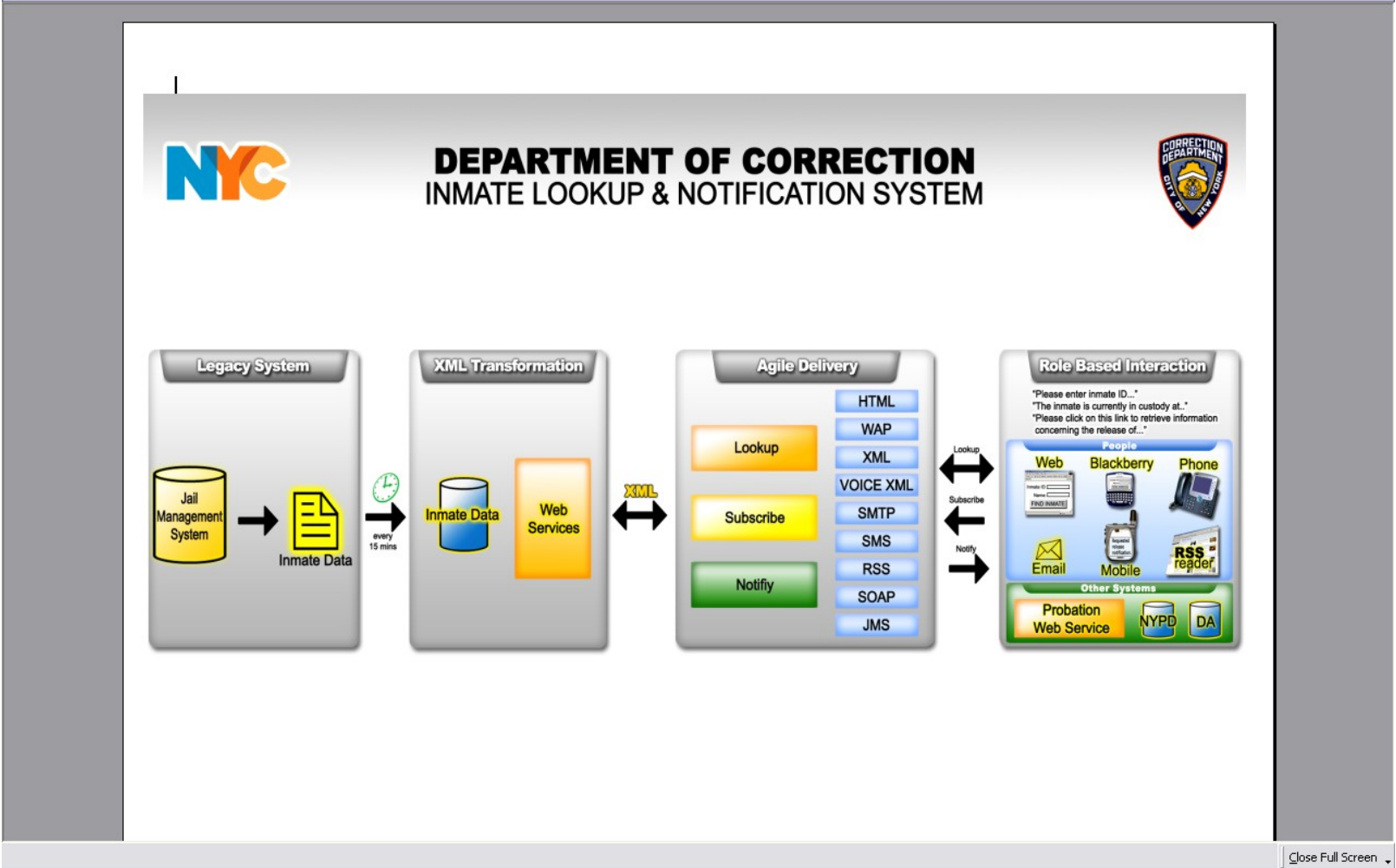


Principles of SOA

- ✦ Loosely Coupled
- ✦ Coarse-Grained
- ✦ Reusable
- ✦ Interoperable
- ✦ Service Contracts
- ✓ Stateless
- ✓ Composable
- ✓ Autonomous
- ✓ Discoverable
- ✓ Business Focused

Example of a Production System

SOURCE: NYC Dept. of Correction 2005



Types of Services

- ✦ **Business Services**

- Relate to the actual business of the organization, e.g. person, property, address, or incident service

- ✦ **Supporting Services**

- Relate to the supporting IT infrastructure, e.g. authentication, directory, data transformation, subscription, or notification service

Service Identification

- ✦ Service Identification is a planning process undertaken to establish a list of desired services
- ✦ Answers basic questions:
 - ✓ What business service do we need?
 - ✓ What technical services do we need?
 - ✓ What services do we start with?
 - ✓ How will we deal with service life cycle?

Business Services Examples

During the service identification process the following services are identified:

- A person service that is a coarsely grained composite of a group of underlying services that includes law enforcement personnel, witness, victim, subject
- However, some people conclude that the person service is too coarsely grained, that it is more effective to provide the law enforcement personnel, witness, victim, subject services independently

Business Service Examples

During the service identification process some desirable services are identified from partnering agencies:

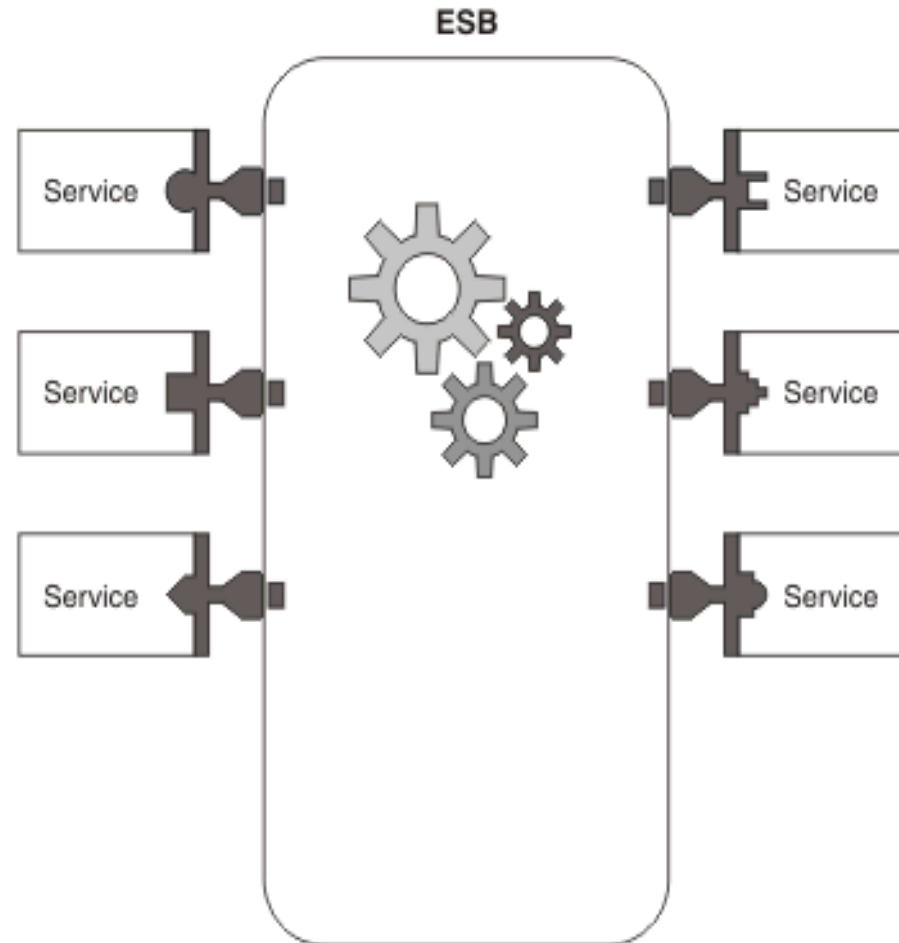
- an inmate lookup service that provides information about the status of an inmate on a lookup basis only
- A court calendar service that provides court schedule availability

Supporting Services Examples

During the service identification process some supporting services are identified:

- A subscription and notification service that can be used to alert people to changes in status, such as to a court schedule
- A monitoring service used to enforce security policies
- A document transformation service used to convert MS Word into PDF or html
- A storage service used to store documents, video, audio, etc.

What is an Enterprise Service Bus?



Enterprise Service Bus

- ✦ An ESB is a solution created to consolidate functionality that SOA implementations will likely require
- ✦ ESBs exist at the implementation level, e.g. are not described in the OASIS Reference Model

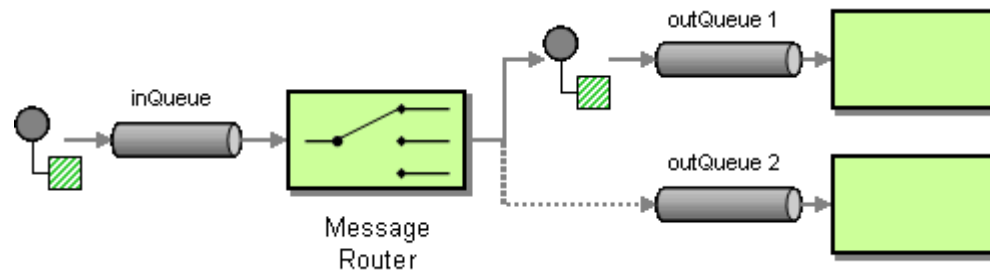
Role of an ESB in SOA

- ✓ Routing
- ✓ Message Transformation
- ✓ Message Enhancement
- ✓ Protocol Transformation
- ✓ Service Mapping
- ✓ Message Processing
- ✓ Process Choreography
- ✓ Service Orchestration
- ✓ Transaction Management
- ✓ Security

Message Routing

Source: Enterprise Integration Patterns, Gregor Hohpe and Bobby Woolf

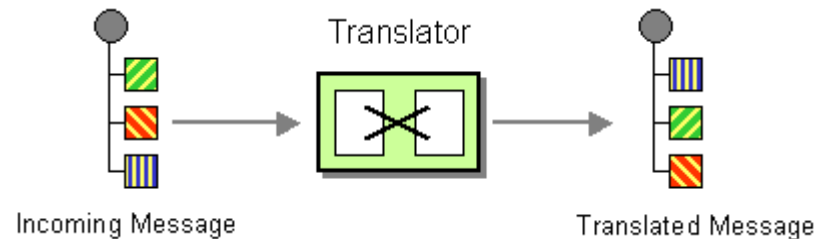
- ✦ A message is routed on the appropriate path
- ✦ Can be based on content, process, or other criteria



Message Transformation

Source: Enterprise Integration Patterns, Gregor Hohpe and Bobby Woolf

- ✦ A message is translated so the recipient can read it
- ✦ Examples: from text to XML, from XML to VXML (voice)



Business Process Management

- ✦ Commonly known as “BPM”
- ✦ A business process is the steps that occur from an initial input to reaching a result
 - A business process can include events, activities, decisions, and artifacts such as documents
 - A business process can be decomposed into discreet pieces

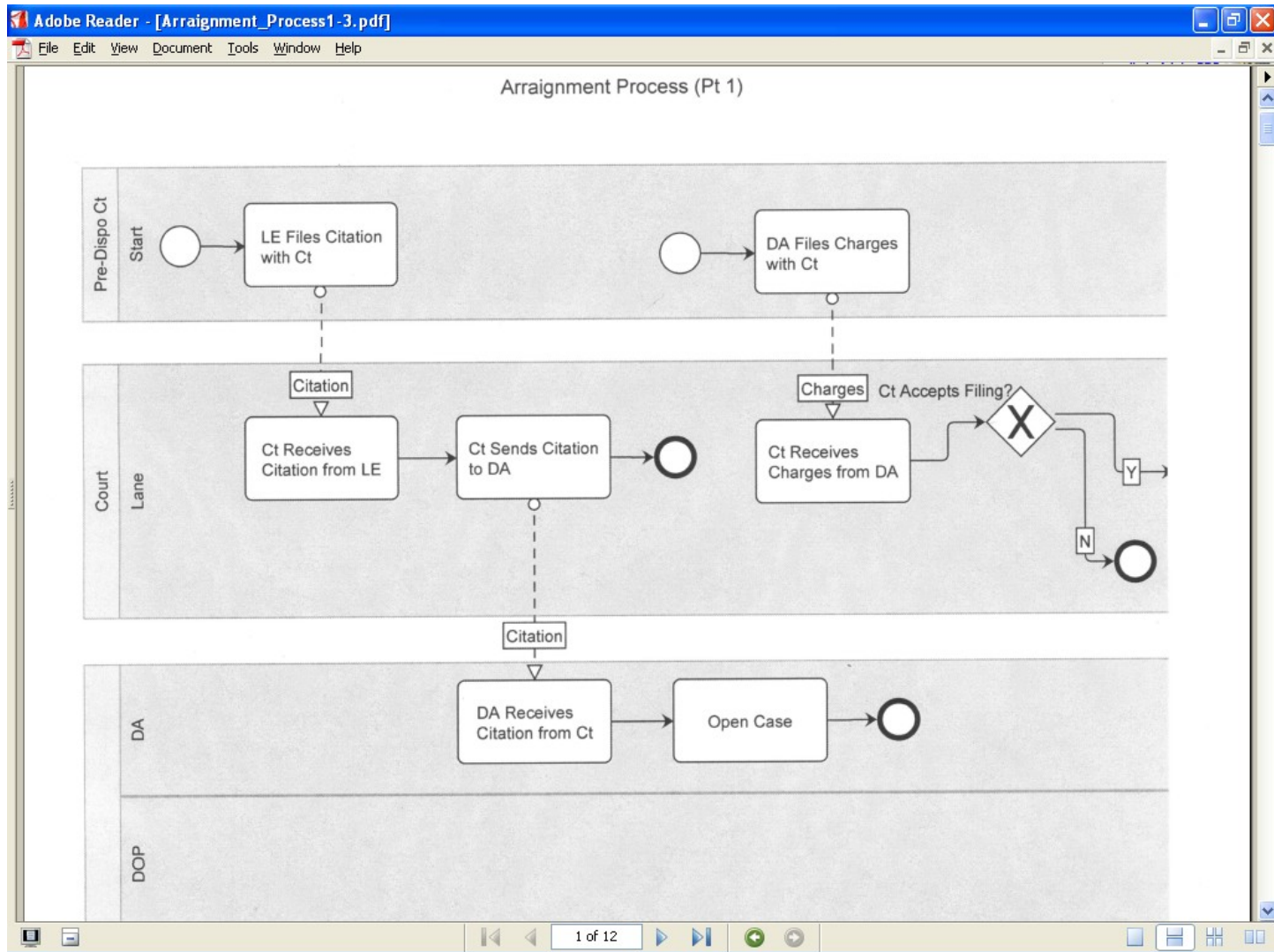
Business Process Management (cont.)

- ✦ BPM is not the same as workflow – workflow is people-based – while BPM is process-based
- ✦ THE BPM standard is called BPEL (Business Process Execution Language), and BPEL currently does not include people-based activities

Business Process Modeling

- ✦ A business process model is the visual picture of a business process and is created using specialized modeling tools
- ✦ The standard for BPM modeling is called BPMN (Business Process Markup Notation)

BPMN of Arraignment Process



Standards Development

- ✦ Standards make interoperability possible
- ✦ The standards development process is run by a combination of leading vendors, standards bodies, and governments
- ✦ Many standards don't make it, they get partial adoption and then get superseded or just fizzle out
- ✦ Do your research, don't get caught!

Examples of Mature & Developing Standards

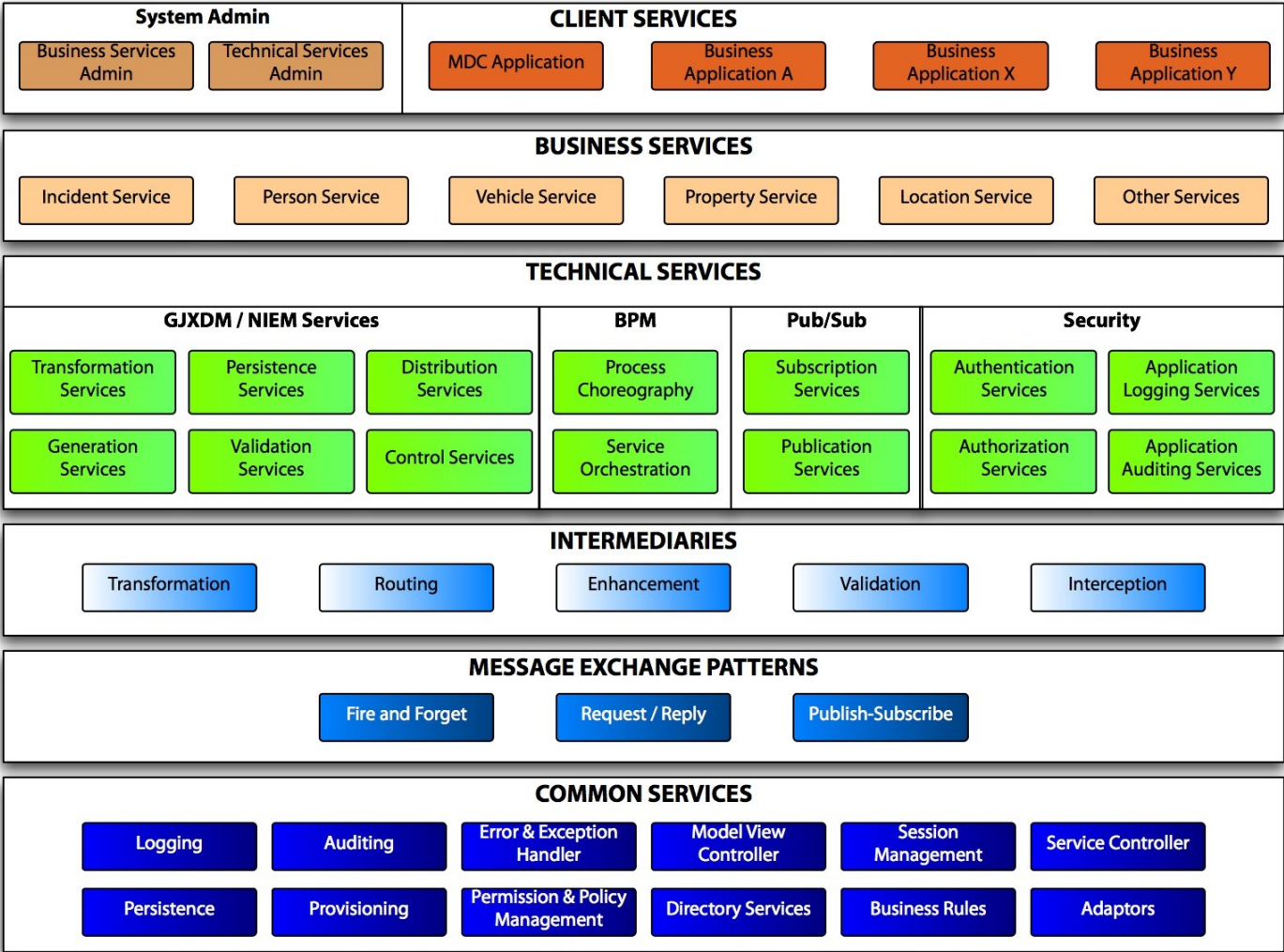
+ **Mature**

- HTTP
- JMS
- WSDL
- SOAP
- BPEL
- UDDI
- WS-Security
- WS-Reliability

+ **Developing Standards**

- SCA
- SDO
- JBI
- WS-Eventing
- WS-Notification

Example: Law Enforcement SOA



Emerging Trends

✚ **Web 2.0**

- Grid
- Participatory Web
- AJAX / Rich UI

✚ **Event-Driven**

✚ **SEARCH**

Example of Web 2.0 - Grid

The screenshot shows a Mozilla Firefox browser window displaying the Amazon Simple Storage Service (Amazon S3) page. The browser's address bar shows the URL: <http://www.amazon.com/gp/browse.html?node=16427261>. The page content includes the Amazon Web Services logo, a navigation menu, and a main section titled "Amazon Simple Storage Service (Amazon S3)".

Learn About Amazon Web Services

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Browse Web Services

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- [Amazon Mechanical Turk \(Beta\)](#)
- [Amazon Simple Storage Service](#)
- [Amazon Simple Queue Service](#)
- [Alexa Web Services](#)
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Amazon Simple Storage Service (Amazon S3)

Amazon S3 is storage for the Internet. It is designed to make web-scale computing easier for developers.

Amazon S3 provides a simple web services interface that can be used to store and retrieve any amount of data, at any time, from anywhere on the web. It gives any developer access to the same highly scalable, reliable, fast, inexpensive data storage infrastructure that Amazon uses to run its own global network of web sites. The service aims to maximize benefits of scale and to pass those benefits on to developers.

Amazon S3 Functionality

Amazon S3 is intentionally built with a minimal feature set.

- Write, read, and delete objects containing from 1 byte to 5 gigabytes of data each. The number of objects you can store is unlimited.
- Each object is stored and retrieved via a unique, developer-assigned key.
- Authentication mechanisms are provided to ensure that data is kept secure from unauthorized access. Objects can be made private or public, and rights can be granted to specific users.
- Uses standards-based REST and SOAP interfaces designed to work with any Internet-development toolkit.
- Built to be flexible so that protocol or functional layers can easily be added. Default download protocol is HTTP. A BitTorrent(TM) protocol interface is provided to lower costs for high-scale distribution. Additional interfaces will be added in the future.

Pricing

- Pay only for what you use. There is no minimum fee, and no start-up cost.
- \$0.15 per GB-Month of storage used.
- \$0.20 per GB of data transferred.

(Amazon S3 is sold by Amazon Web Services LLC.)

Resources

- [Resource Center](#)
 - Technical documentation

Your Web Services Account

[Sign Up For Web Service](#)

Customer Spotlight

Altexa

In just two days Altexa integrated Amazon S3 into Altexa Backup and can now offer its customers a bullet-proof storage product that costs fifteen times less than competitive solutions on the market.

[Click here to learn more about their success](#)

Example of Web 2.0 - Participatory

43 Things - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Refresh Print Mail News RSS Feeds

Address <http://www.43things.com/> Go Norton Internet Security Norton AntiVirus

Home Zeitgeist Log In Search GO

What do you want to do with your life?

711,361 people in 10,231 cities are doing 760,139 things including...

[get fit](#) [eat healthier](#) [stop being a shop-a-holic](#) [Run my own internet radio station](#) [bicycle across the country](#) [be more confident](#) [to inspire and be inspired](#) [Be an extra in a movie](#) [pass my exams](#) [elsawish wants to Go Germany, for it's delicious chocolate!!!](#) [go to Venice](#) [lose 5 lbs](#) [have more fun](#)

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- [Toronto](#) 1196 people
- [San Francisco](#) 1191 people
- [Austin](#) 870 people
- [Boston](#) 849 people
- [Atlanta](#) 843 people
- [Portland](#) 814 people
- [Vancouver](#) 788 people
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<http://www.43things.com/things/view/421> Internet

AJAX / Rich UI

✓ Typical Web model

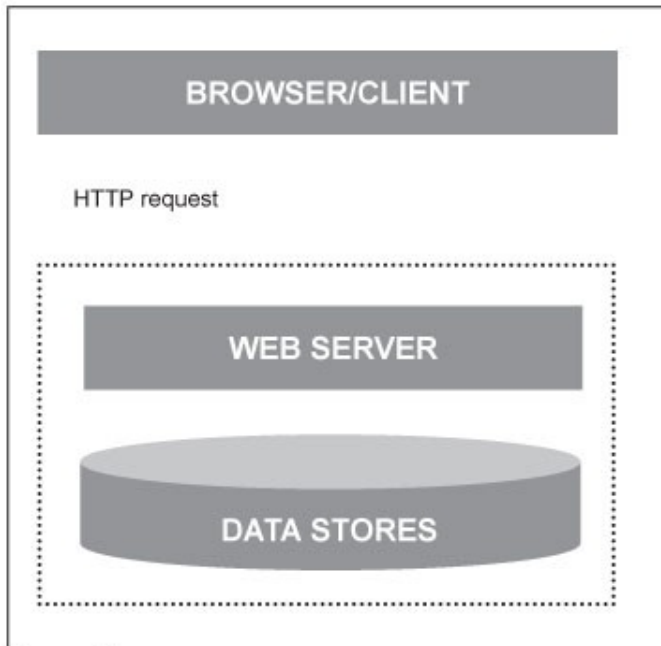


Figure 1

✓ AJAX model

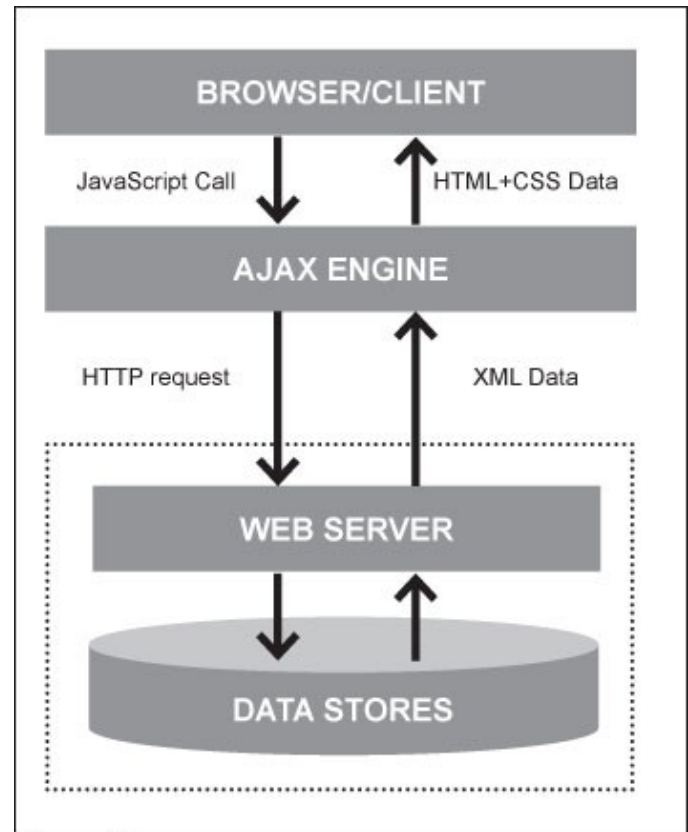


Figure 2

AJAX / Rich UI

1300 Nicollet Mall, minneapolis, mn - Google Maps - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://maps.google.com/maps?q=1300%20Nicollet%20Mall%2C%20minneapolis%2Cmn&ie=UTF-8&oe=UTF-8&aq=t&rls=org.mozilla:en-US:official&cli Google

Google Maps [Web](#) [Images](#) [Video](#) [News](#) [Maps](#) [more »](#)

1300 Nicollet Mall, minneapolis, mn

Maps

Traffic

Address: 1300 Nicollet Mall, Minneapolis, MN 55403

[Make this my default location](#)

Get directions: [To here](#) - [From here](#)

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Example of Web 2.0 – Event Driven

FeedBurner - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites

Address <http://www.feedburner.com/fb/a/home> Go Norton Internet Security Norton AntiVirus

You are **not signed in** ([Sign In](#) or [Register](#)) • [Support Forums](#)

Hello, our name is FeedBurner.

Nielsen/NetRatings [says](#) we're growing faster than MySpace & Digg.

Blogs »
Attract fans, promote your content, generate \$

Podcasts »
Make your audio and video content "subscribable"

Commercial »
Join Reuters, USA TODAY, Newsweek and others

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Blogbeat captured!

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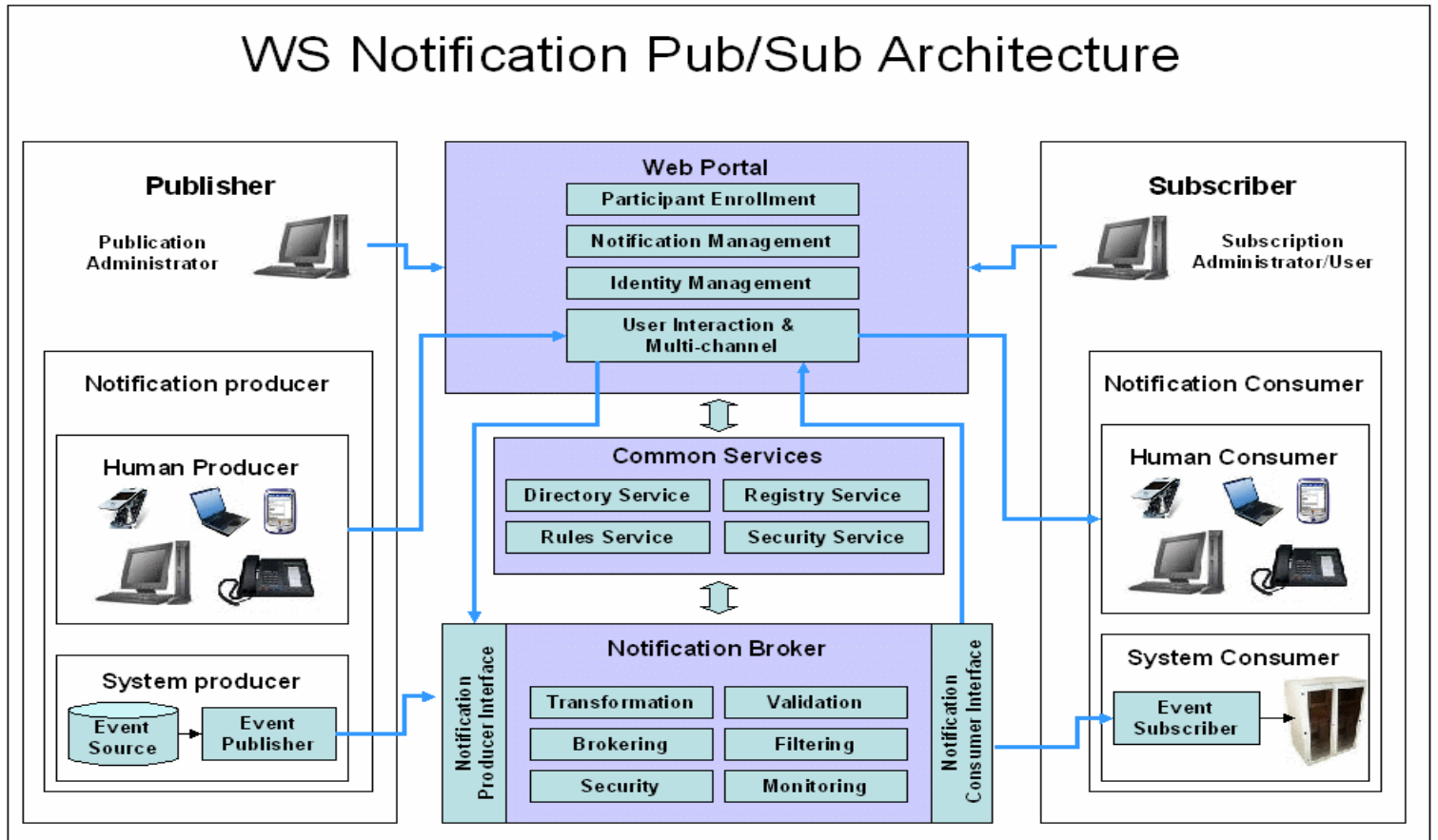
The FeedBurner Blog

- ♦ [Up, up advertising inventory](#)
- ♦ [From Russia with Love](#)
- ♦ [BrowserFriendly Now BrowsierFriendlier](#)

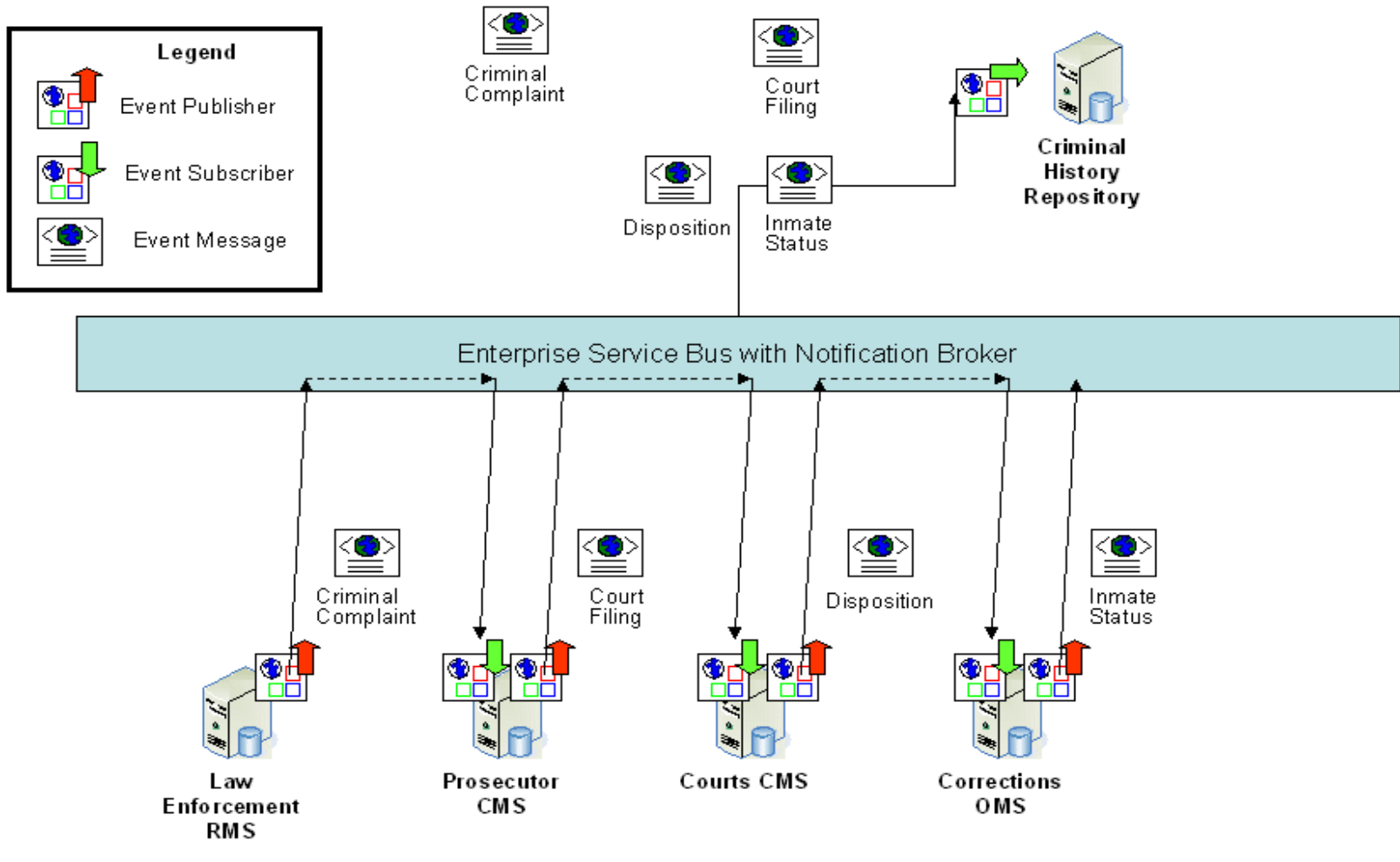
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Internet

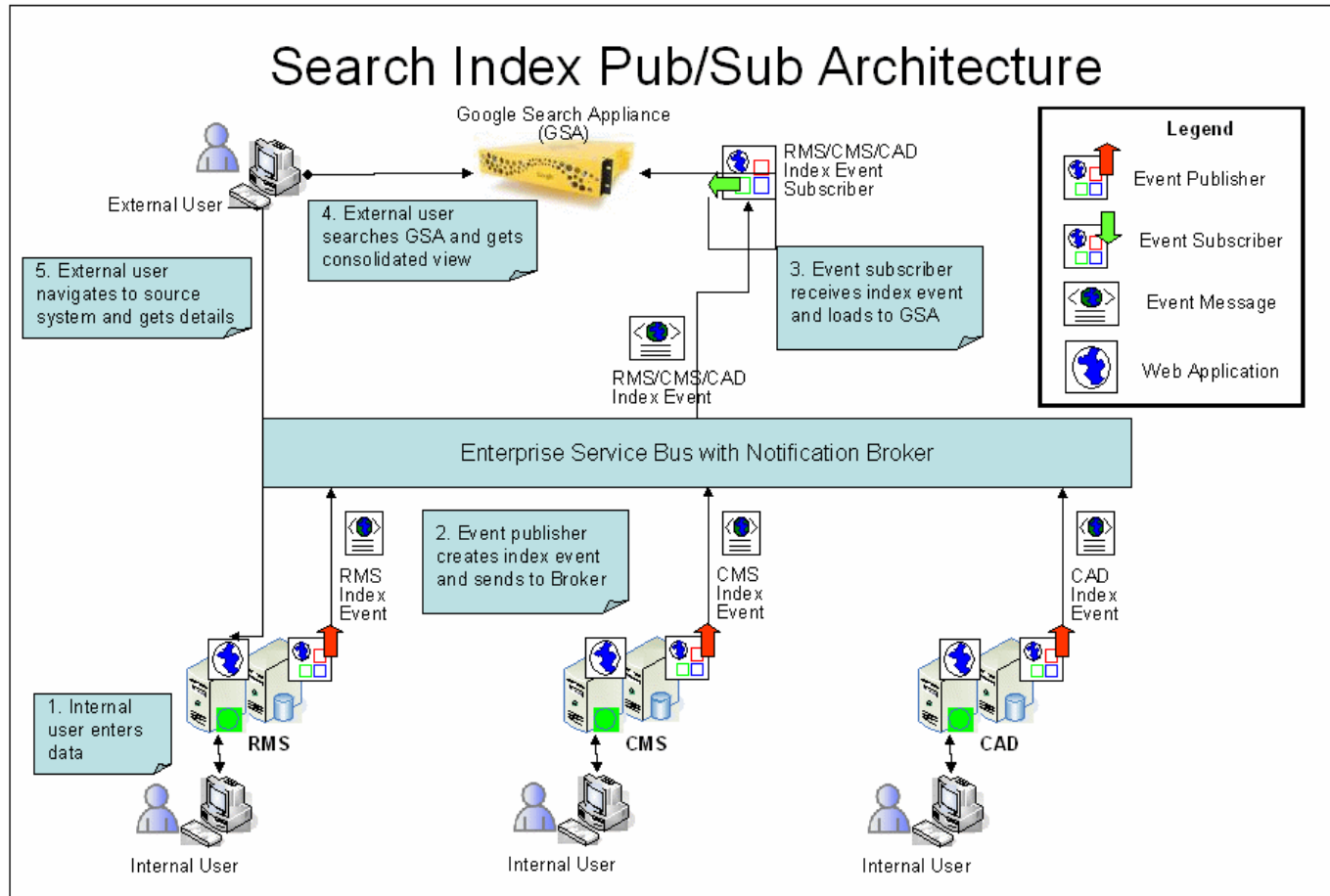
Event-Driven SOA WS-Notification



Event-Driven Justice Environment



Search in Event-Driven Justice SOA



How to Start?

- ✦ **Tactical - Identify some quick wins to validate approach**

- High value, low complexity services with low security requirements

- ✦ **Strategic - Develop strategic plan**

- Establish business case
- Define organizational approach including governance
- Do an iterative service identification process

Questions?

Kael Goodman

212-420-7870

www.govcore.com

Thank you!