Enterprise RIA – Deployment Examples

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Speaker Bio

- *Last 6 years (2002-Now)* – Consultant & *Board Member at several start-ups, Chief Strategy Officer at Curl since 2+ years*

- *10 Years (1992-2002)* – Oracle, *Group Vice President, Systems Architecture and Technology, responsible for the server product planning and rollout*

- *16 years (1975-1992)* – IBM, *Planner, architect, and development manager for DB2 product line at Silicon Valley Lab and Austin Lab. Head of IBM's Database architecture, planning, and technology*

Talk outline

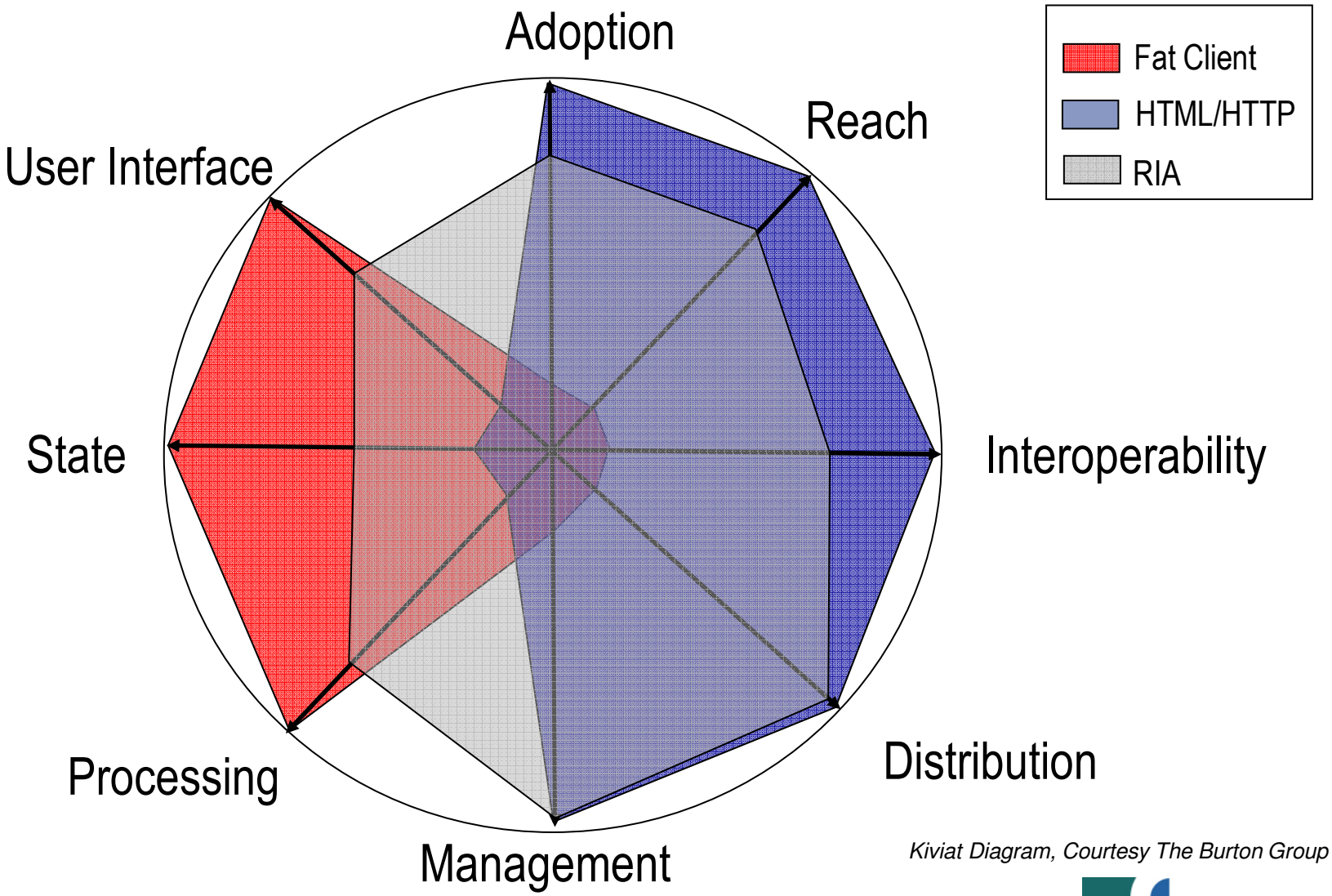
- RIA Basics
- Enterprise RIA
- Deployment examples
- Vendor landscape
- Summary

Rich Internet Application (RIA)

- The next generation of the Web is marked by dynamic, interactive, open and highly flexible applications that not only go beyond the capabilities of classic Web applications but also exceed the features of desktop applications. *Jim Rapoza, eWeek, 8/2007*

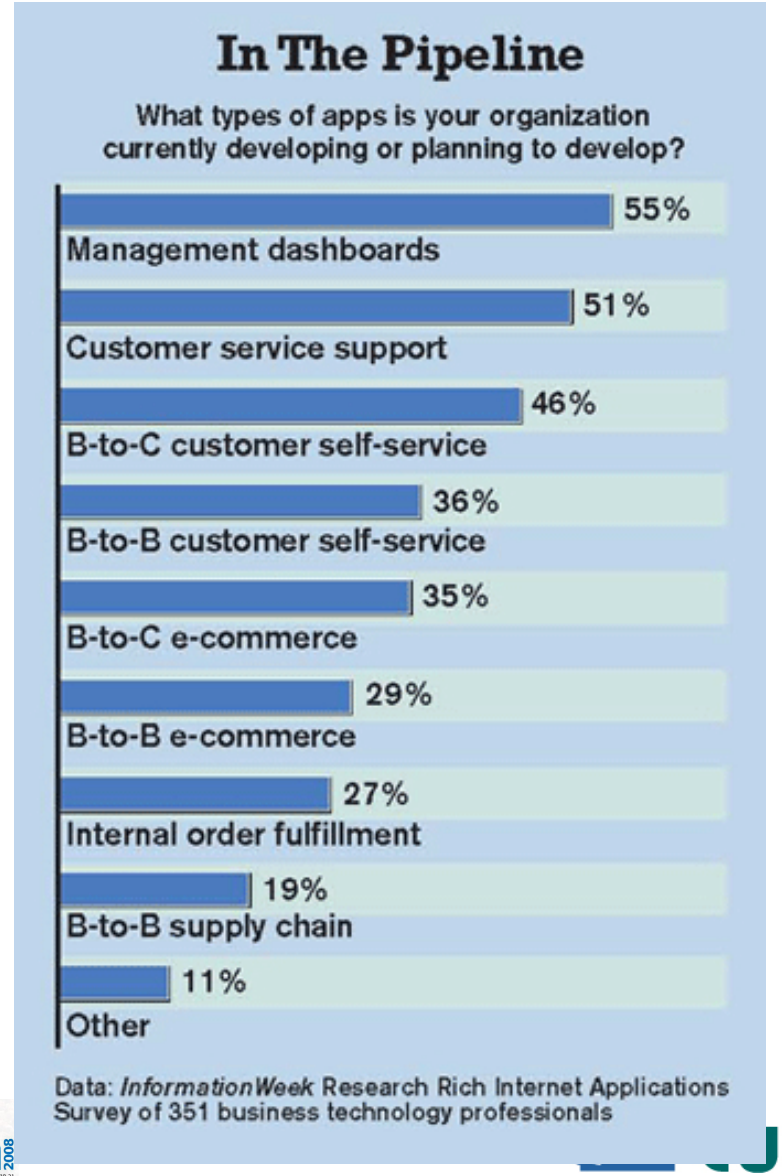
- "The prevalence of consumer RIAs already is driving end users to demand similar capabilities from the businesses they work for, buy from, and partner with…"
  Information Week, August 4, 2008

RIA explained



Kiviat Diagram, Courtesy The Burton Group

Why RIA? – from a recent survey



The RIA Technology Landscape

Web Browser

- Microsoft IE
- Mozilla FireFox
- Apple Safari
- Google Chrome

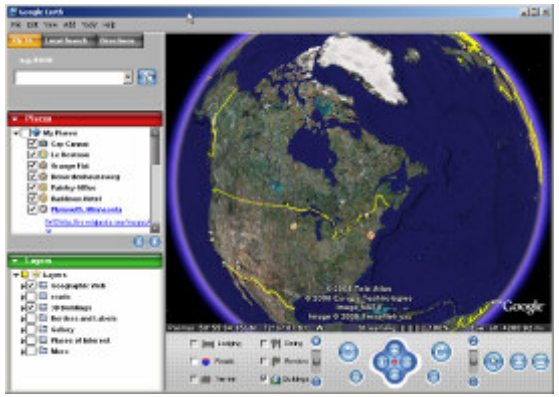
Server Application

- Java EE
- Microsoft .NET
- LAMP
- Other

Rich Internet Application

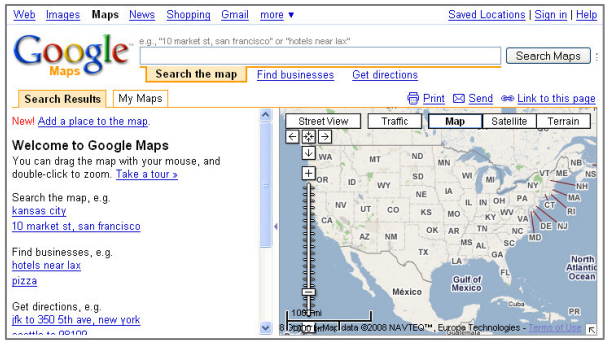
- Ajax (Dojo, GWT, Prototype, etc.)
- Adobe Flex, AIR
- Curl
- Microsoft Silverlight

New Trend in Client Architecture



Rich UI

RIA, Web 2.0,Ajax



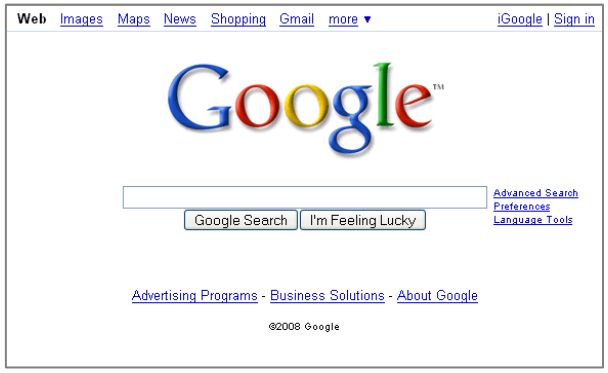
Client-Server

Scripting, CSS, DOM

FIT CLIENT

Widgets

HTML, Web 1.0



Tiny floating applets

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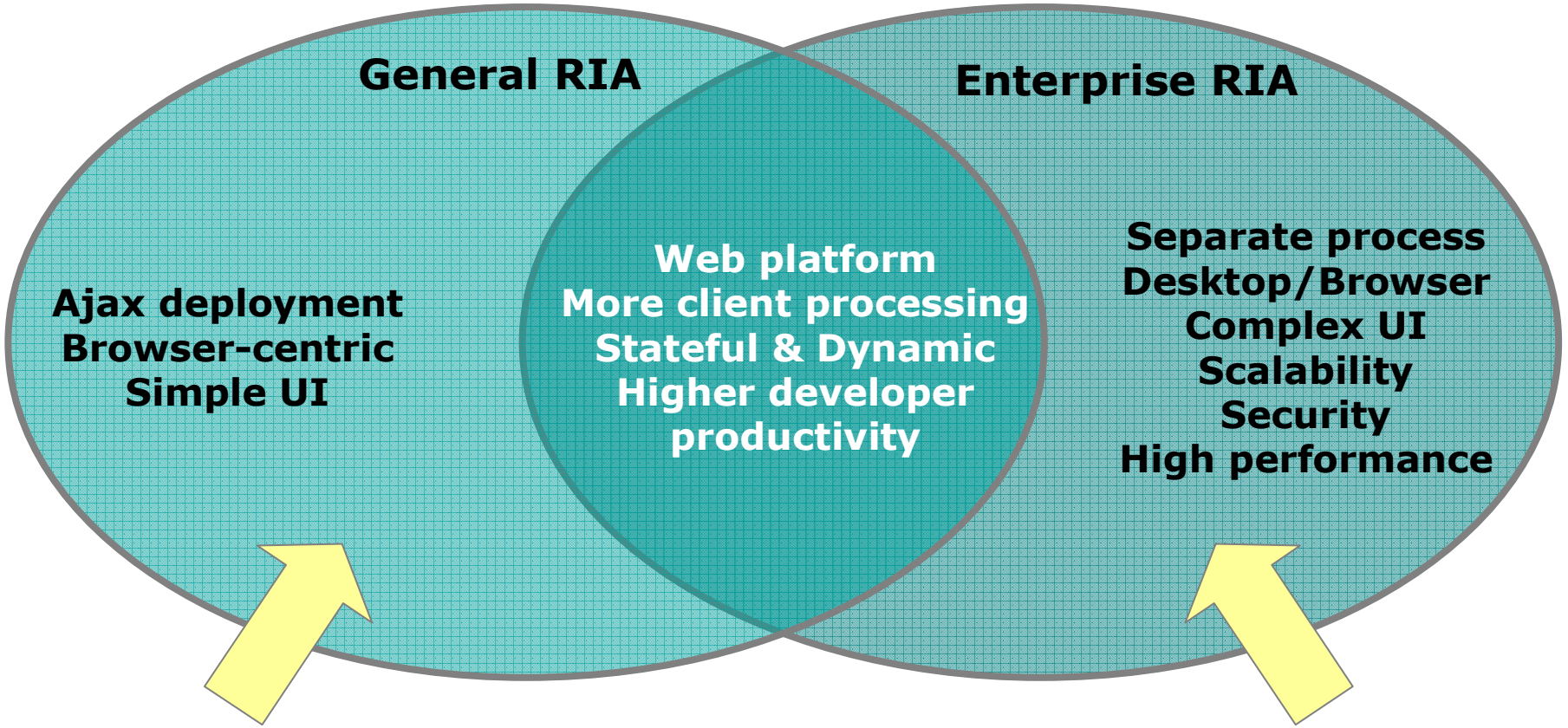
What is Enterprise RIA?

General RIA vs. Enterprise RIA

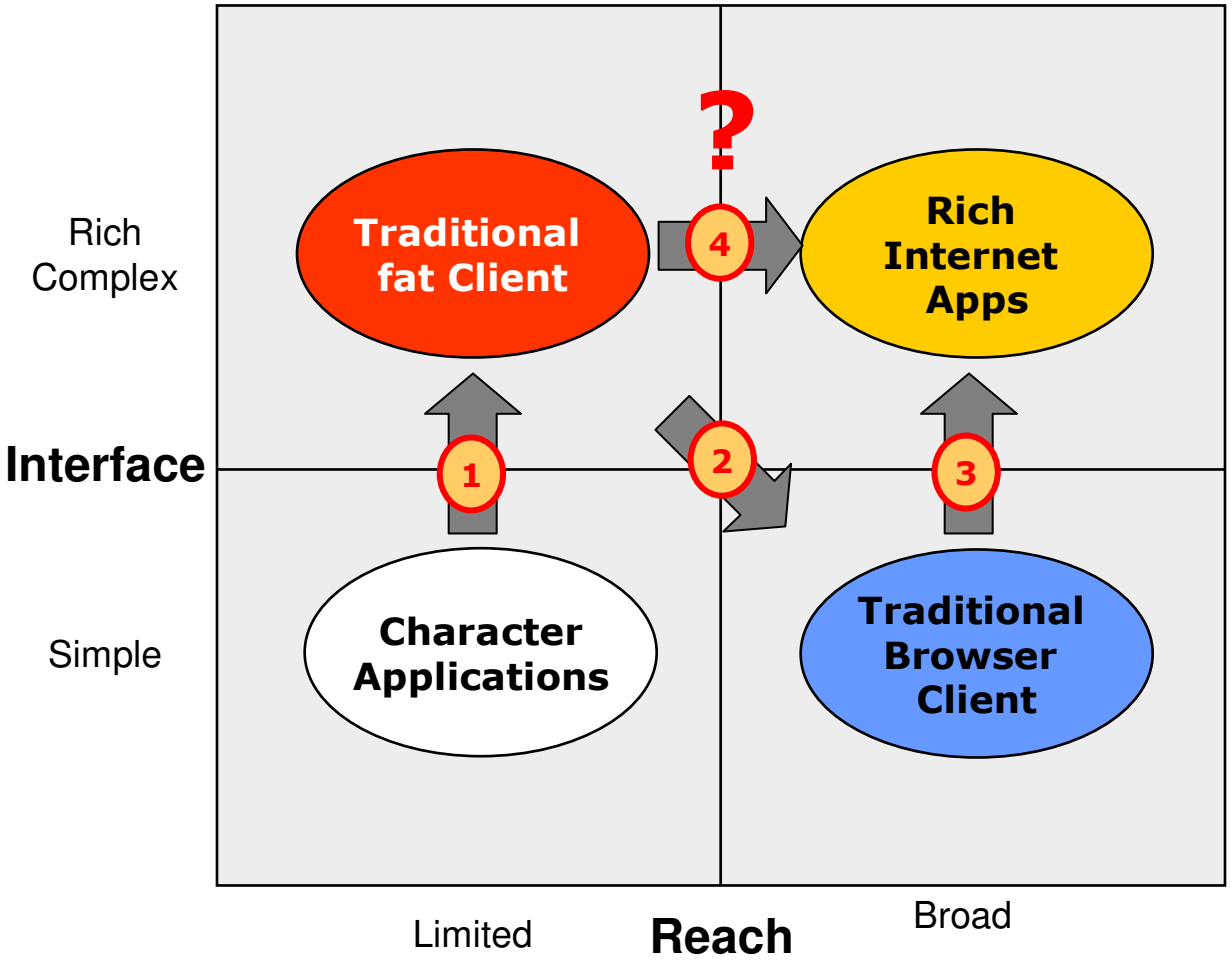


Shift from Thin Client, Web 1.0

Shift from Client-server

The enterprise RIA dilemma

Performance & Complexity – With broad reach and low TCO



Enterprise RIA platforms must meet the needs of complex client-server applications.

Requirements for Enterprise RIA

- Displays complex graphics and reports for users
- Handles large data sets
- Ensures very high performance
- Offers very high scalability
- Addresses strict security requirements
- Provides online/offline operation
- Follows SOA and standards
- Facilitates migration from legacy apps
- Enables platform independence
- Includes rich development tools
- Eases manageability

Enterprise RIA

Can you show some real examples?

Yes, Four Examples

1. **Finance** – a bank providing aggregate asset management to customers (B2C)
2. **Governance, Risk, Compliance (GRC)** – an ISV providing GRC tool to customers (B2E)
3. **Supply Chain** – a supplier providing a system for configuring and ordering construction grade glass (B2B)
4. **Manufacturing** – an electronic manufacturer providing excellent customer service (B2E)

- Overview

- World-class financial firm founded in 1919
  - *around 33,000 employees*
  - *over 800 offices worldwide*
  - *in more than 40 countries*
- Offering online banking for individual users since 1989
- Back in 2002, a new customer requirement came for "*Account Aggregation Service*"
  - *Provide multiple accounts information (from different banks, credit cards, etc.) in one view*
  - *Three major needs - excellent functions, high security, and advanced usability*

Bank of Tokyo-Mitsubishi UFJ

- Key Design Points

- Build a web-based *"Assets Analysis Tool"*
  - *To aggregate diverse financial assets in "one view"*
  - *provide flexible analysis capabilities*
- Make it highly scalable to large number of users
- Handle large volumes of data at client side with performance
- Provide high security for sensitive financial data
- Provide client side persistent data

Bank of Tokyo-Mitsubishi UFJ

- The Solution

- BTMU picked Curl RIA Platform for the system
  - *enables local data persistence in secure manner (very difficult with traditional web technology)*
- Highly flexible and intuitive UI - combining charts by drag & drop
- Real time simulation to optimize portfolio
- Minimized server-side round-trips with secure local data storage (big cost saver)
- Very scalable to increasing number of users - over 100,000

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Screen View 1

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Screen View 2

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Four Examples

1. **Finance** – a bank providing aggregate asset management to customers (B2C)
2. **Governance, Risk, Compliance (GRC)** – an ISV providing GRC tool to customers (B2E)
3. **Supply Chain** – A Saas delivered system for configuring and ordering construction grade glass (B2B)
4. **Manufacturing** – an electronic manufacturer providing excellent customer service (B2E)

- Overview

- A leading software vendor – offers solutions for governance, risk and compliance
  - *including financial control management, internal audit, risk management, IT governance and compliance*
- Solutions to better identify and reconcile the risks impacting organizations
  - *allowing users to ensure that evaluations of risks are completed quickly, consistently and accurately*
- Original system - client-server with Lotus Domino
- New web-based system with two versions
  - *Paisley Enterprise GRC*
  - *GRC on Demand (SaaS offering)*
- Ranked by the Gartner Group as the leader in GRC

- The Problem

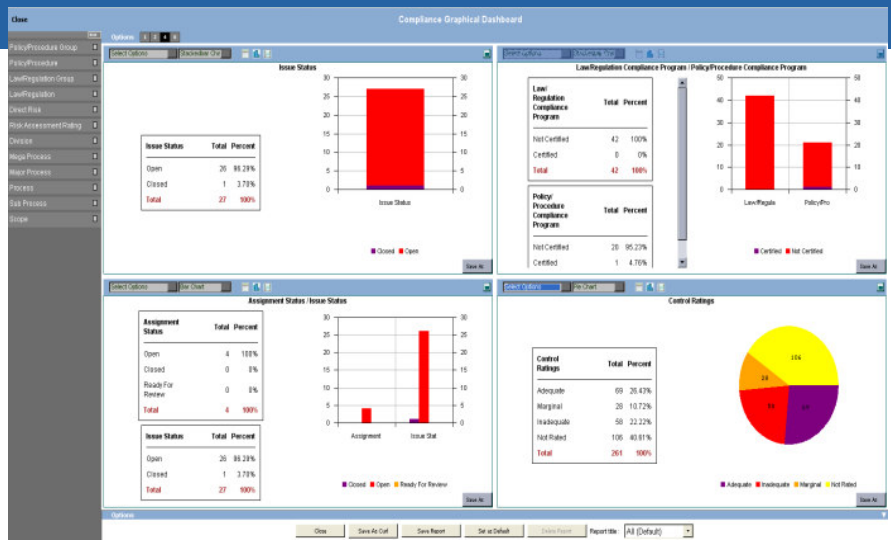
- Biggest competitors are Excel and Word
  - *users used to fat clients*
  - *jump to pure web-based form processing is just too great*
- Tried lots of JavaScript into forms to try and appease the users and make the application feel more "client side"
- Realized the need to move some of the processing back to the desktop
- Large volume of data to be consumed
- Needed a more productive and intuitive way to process data (colors, graphs, ..) but still drill to underlying data records

- The Solution

- Selected Curl RIA platform for the client-side
- Created a "push" model for Curl
  - *Curl gets user input and knows how to go get the files to display that data*
- Implementation
  - *4 people in training for 3 days*
  - *4 months to ship a product release*
- Timeline
  - *Heatmaps (2004)*
  - *Scorecards (2005)*
  - *Desktops (2006)*
  - *Workforce Scheduling (2007)*
- Transitioned from Domino to Java pretty effortlessly within Curl – very high reuse of the Curl assets
- A directive was to make it look like Excel and make it print out just like it appears on the screen

Paisley Enterprise GRC – Use of Curl

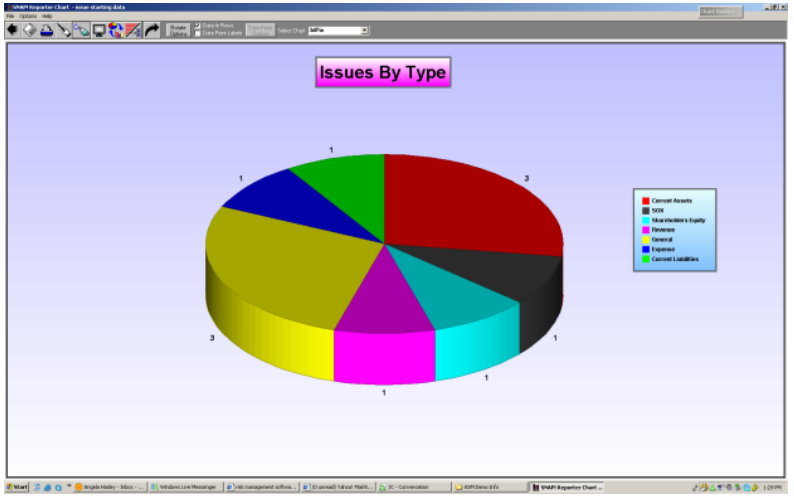
- Paisley Developed Reporting Solutions
  - Graphical Dashboards
  - Heatmaps
  - Scorecards



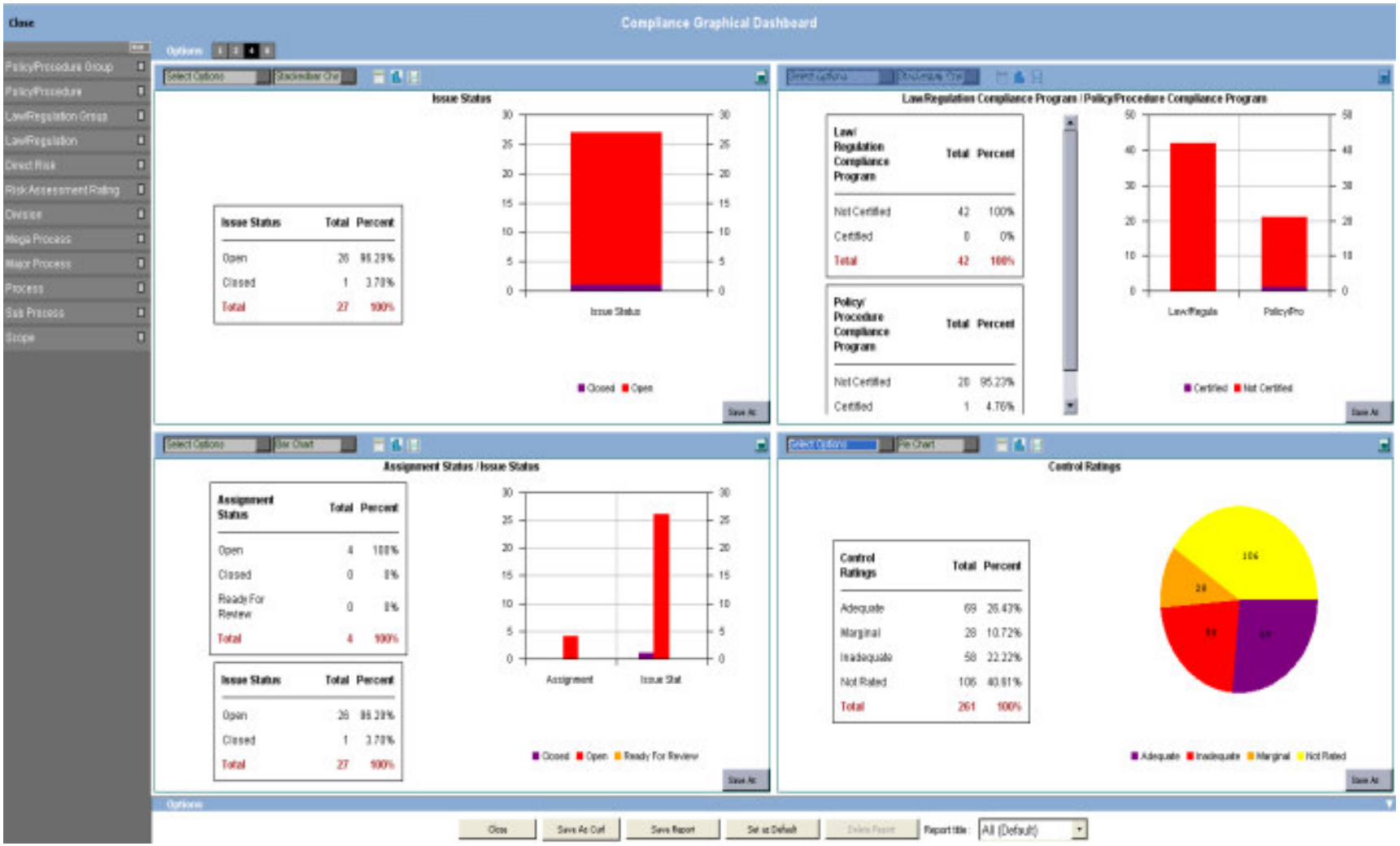
Risk Factors By Compliance Program

Display: Law & Regulation

Law & Regulation	Complexity Of Compliance	Understanding of Requirements	Inherent Risk of Non-Compliance
EEO - 501 & 505 Rehabilitation	Medium	Medium	High
EEO - ADA	Not Rated	Not Rated	Not Rated
EEO - Age Discrimination	Medium	High	Low
EEO - Civil Rights	Not Rated	Not Rated	Not Rated
EEO - Equal Pay	Medium	Low	Low
HIPAA - 1175	Low	Low	Low
SOX - 302	High	Low	Low
SOX - 404	Low	Low	Low



Graphical Dashboard



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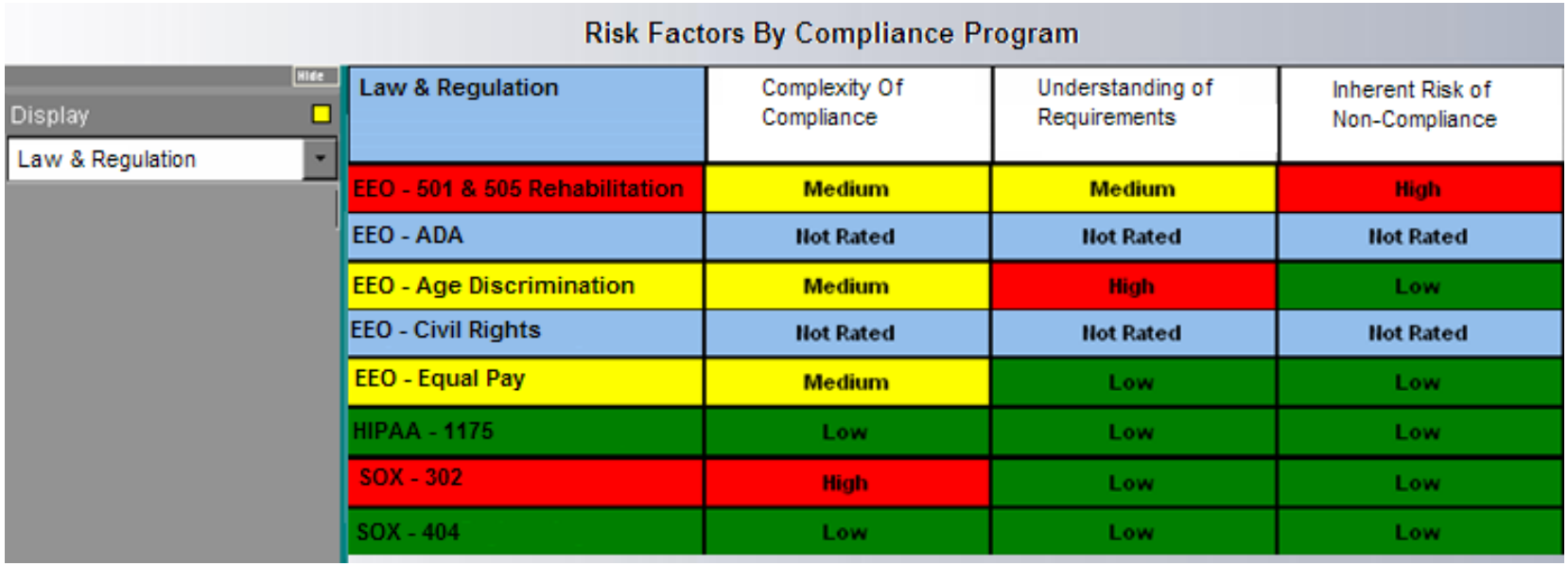
Enterprise HeatMap



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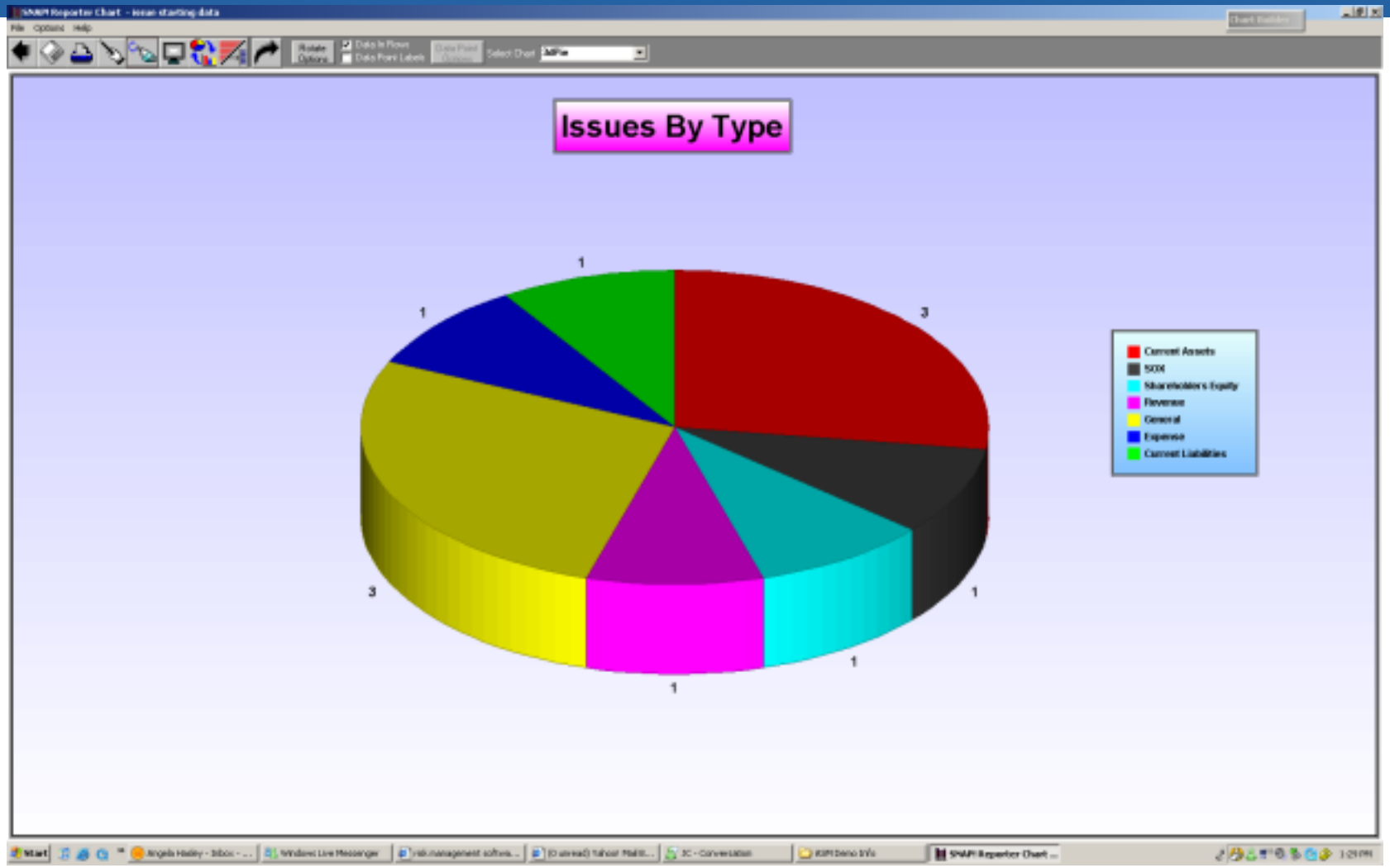
Graphing


Issues By Type
1
1
3
3
1
1
1
Current Assets
SOX
Shareholders Equity
Revenue
General
Expense
Current Liabilities

Four Examples

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4. **Manufacturing** – an electronic manufacturer providing excellent customer service (B2E)

株式会社 NTTデータ ビジネスブレインズ NTT DATA BUSINESS BRAINS CORPORATION - Overview

- NTT Data Business Brains (NDB) provides a glass quote application called "Glazier"
  - *for glass processing partners*
- Per wikipedia, a Glazier is a construction professional that selects, cuts, installs, replaces, and removes residential, commercial and artistic glass
- The RIA here covers the whole quote process:
  - *from highly complex data entries through to quote printing*
  - *Offered as hosted solution to clients (SaaS)*
- The first ever "low price quote application" with highly effective UI in the glass industry

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株式会社 NTTデータ ビジネスブレインズ NTT DATA BUSINESS BRAINS CORPORATION - The Problem

- The old application was built using client-server architecture
  - *required set-up on each PC: time-consuming and expensive for customers*
  - *NDB was slowly losing ground to competition*

- During 5 years with the old application, many user requirements were difficult to implement

- Decision made to design a new web-based solution:
  - *Curl was picked as the RIA client platform*
  - *First released in 2005*
  - *Deployed at 95 client enterprises*

株式会社 NTTデータ ビジネスブレインズ
NTT DATA BUSINESS BRAINS CORPORATION

- The Solution

- The web-based application is complex
  - *Glass-industry-specific complex configuration and pricing with various parameter-settings*
  - *Various types of quote formats, as much as 99 patterns in pricing calculations*
  - *5000 transactions, 9999 line items per transaction*
  - *Printing of quotes & reports*
- Glass quote and master information from centrally hosted database
- Application installation completed by just one click
- End users access to quote information from anywhere
- SaaS deployment eliminates the need for quote updates at each client location
- Lower cost to clients ($100 per user per month)

ガラス工事見積システム
GLazier [グレイザー]

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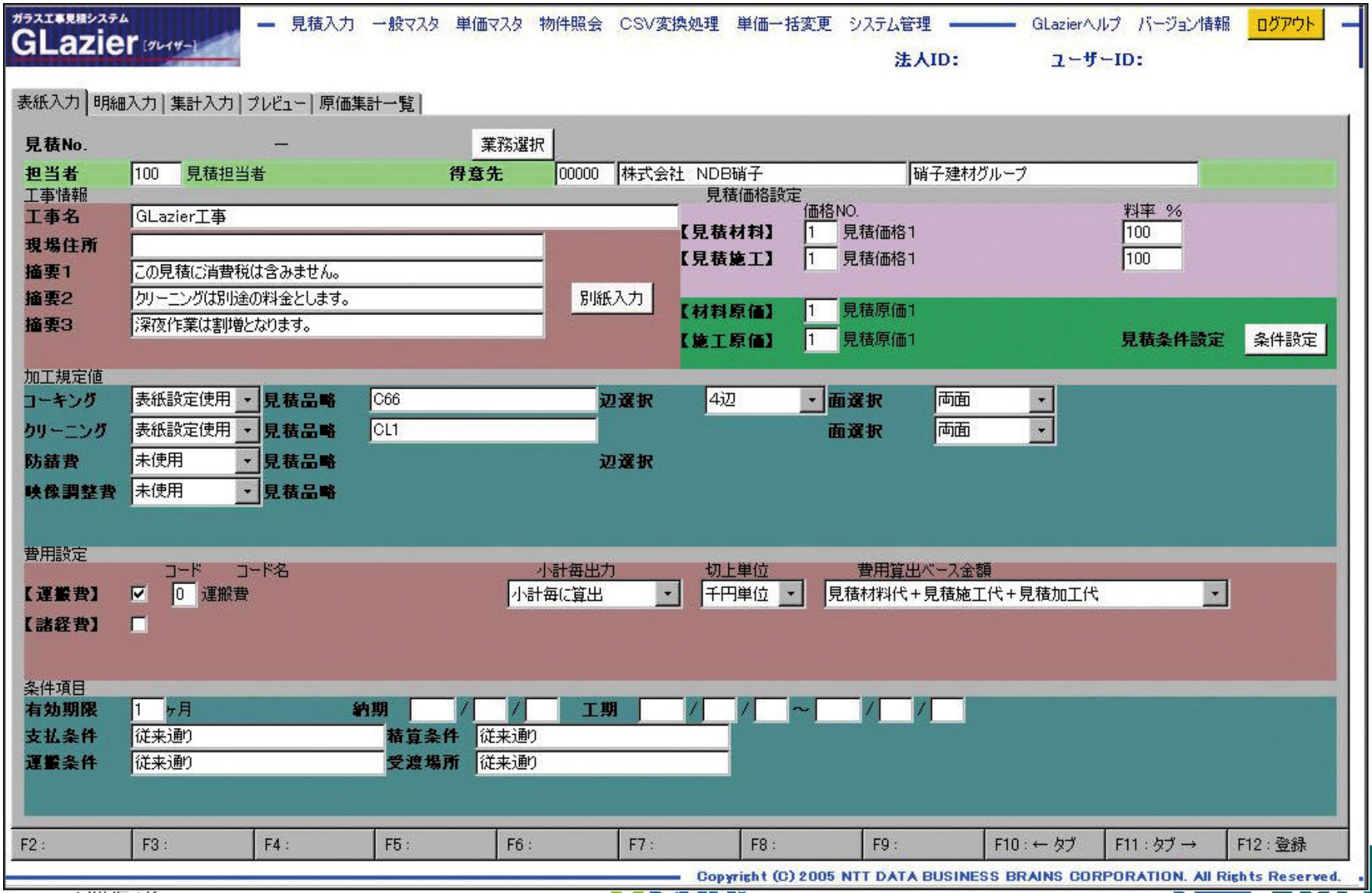
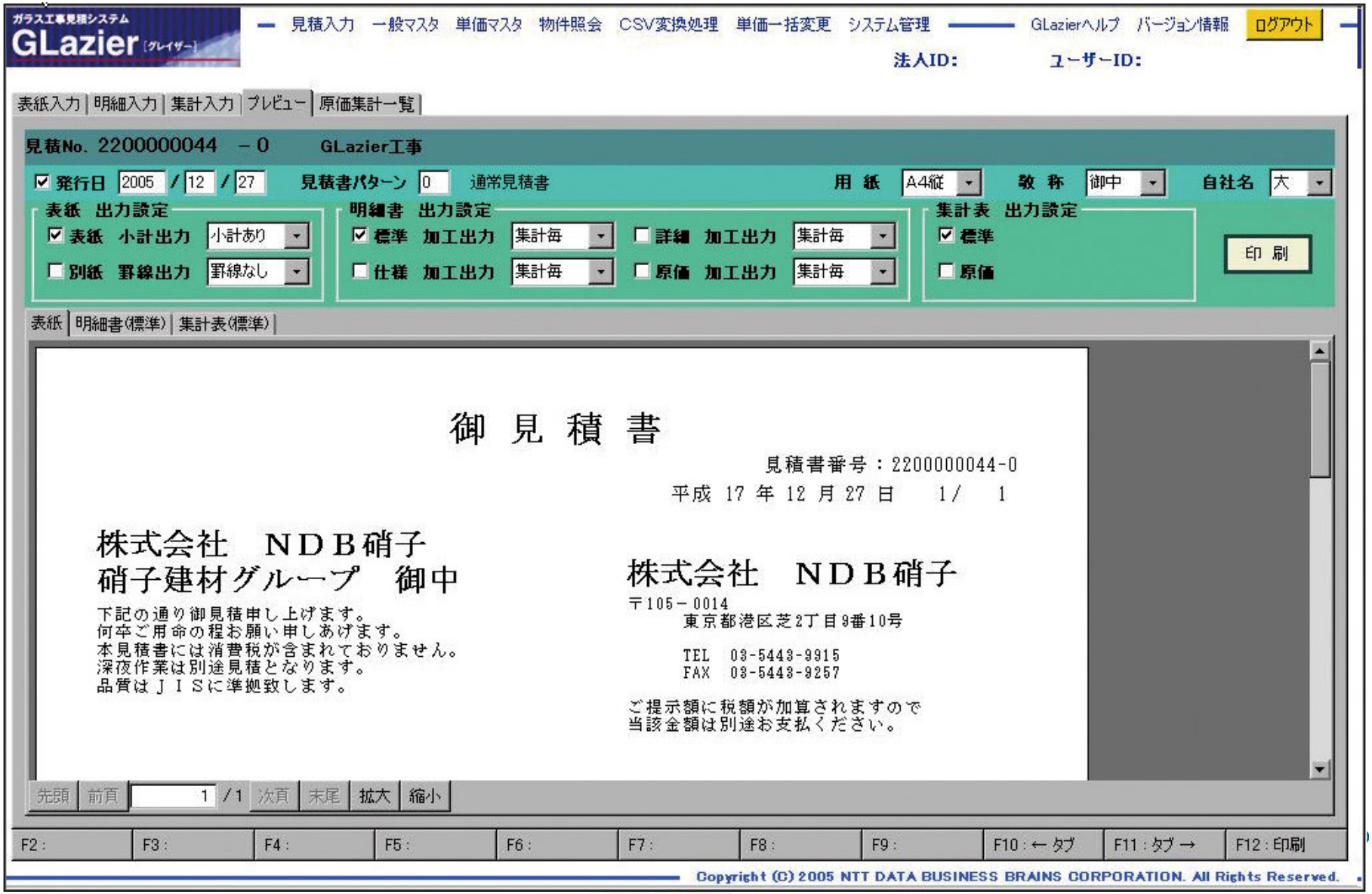
Glazier User View1



Glazier User View2

Glazier User View3



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Panasonic ideas for life - Overview

- Panasonic's AVC Networks Company
  - *founded in 2003*
  - *20,500 employees*
- Provides development, manufacturing, sales and service engineering for AVC equipments like TV, DVDs, etc.
- Number One company goal - Global customer satisfaction
- New System called VOE (Voice Of Engineering)
  - *discover potential critical issues in product quality by sharing and analyzing the information and trends between the field and the management*
  - *facilitate and enhance discovery of potential quality issues and field service levels*

Panasonic
ideas for life

- The Problem

- Discover and respond to potential quality issues "early"
  - *ensure absolute safety of electrical products for the consumers*
- Repair techniques got more complicated as the product diversity increased
  - *Share service information broadly*
  - *Quick access to technical documents*
- System to be used at many branch offices across the globe

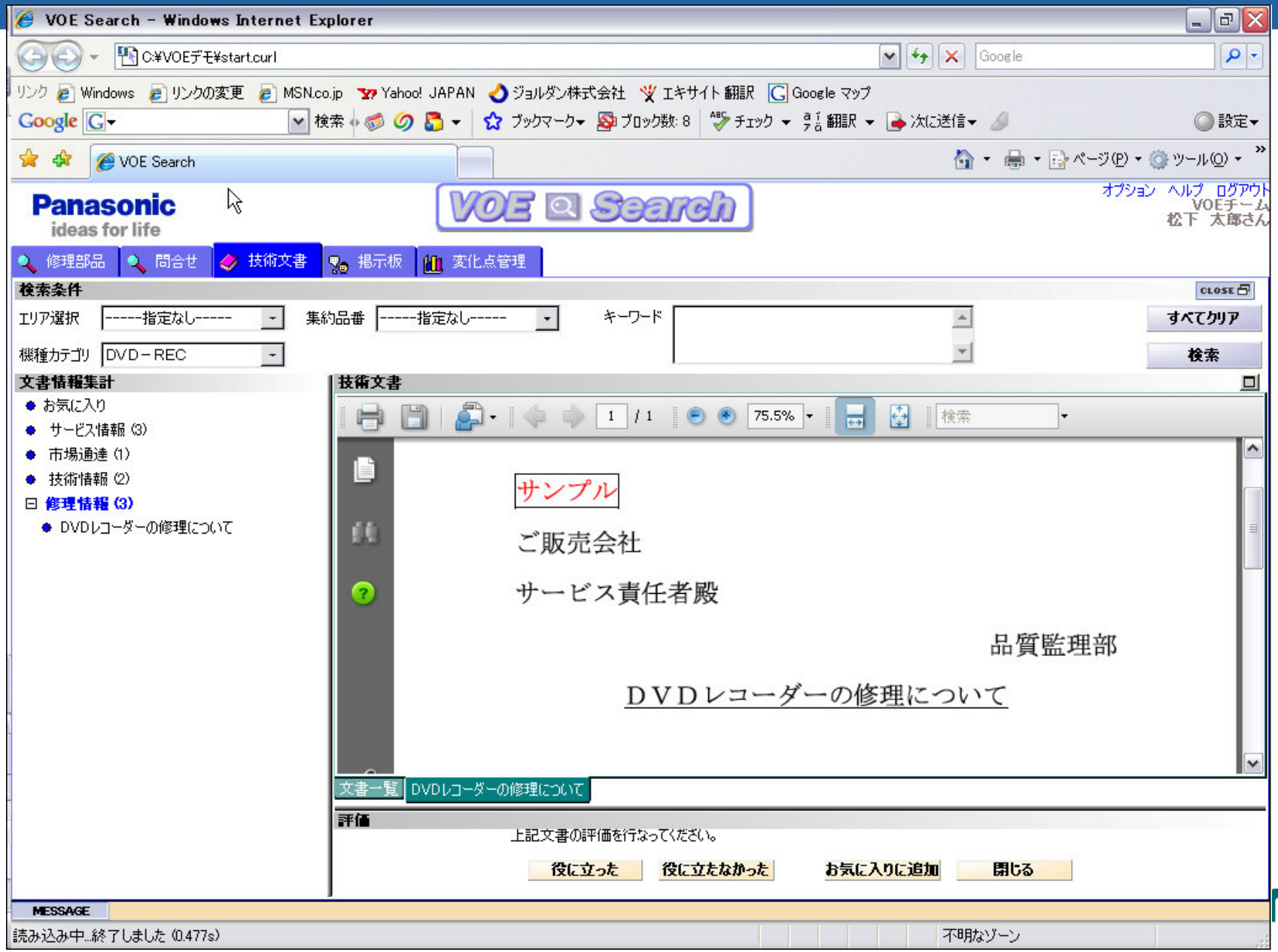
Panasonic
ideas for life

- The Solution

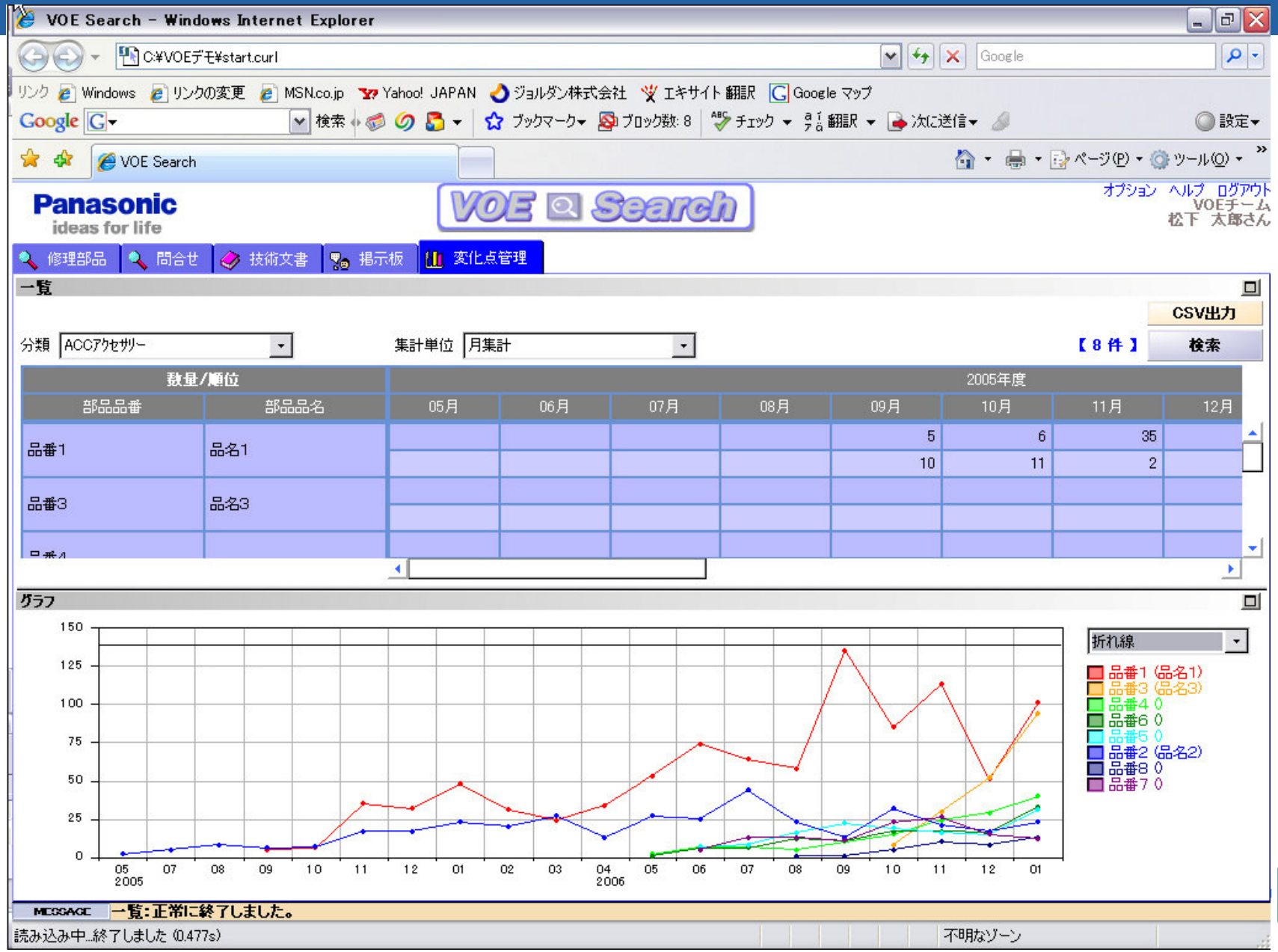
- Main functionality includes:
  - *search for repair parts or technical documents*
  - *bulletin board to share the information*
  - *analytical view of repair parts*
- When an issue arrives, the field engineer types in keywords and searches the information, then narrows it down
- Keyword search structures the information using
  - *a syntactic analysis, morphologic analysis and dictionary (tautology or synonym) and shows the associated information*
- The application presents the list of associated information retrieved from several DBs and related technical documents in PDF or MS Excel format
- Rich visualization of suspected points

VOE – User View 1

VOE – User View 2



VOE – User View 3



Enterprise RIA Vendor Landscape

Enterprise RIA vendors

- Ajax is inadequate for the enterprise
  - Poor security (xss attacks, DOM is porous)
  - Poor scalability
  - Poor performance
- Only 4 players
  1. Curl (Curl)
     - MIT research, one language, designed for enterprise, JIT compiler, very high performance/scale/security, 400 customers
  2. Flex, AIR (Adobe)
     - 2 separate products, Flex came from Macromedia and not designed for enterprise use, AIR is new and very few customers
  3. JavaFX (Sun)
     - very new, unproven, no customers, large java developer community
  4. Silverlight (Microsoft)
     - new, media-focused to fight Flex, few customers, large .Net developer community

Enterprise RIA – questions to ask the vendor

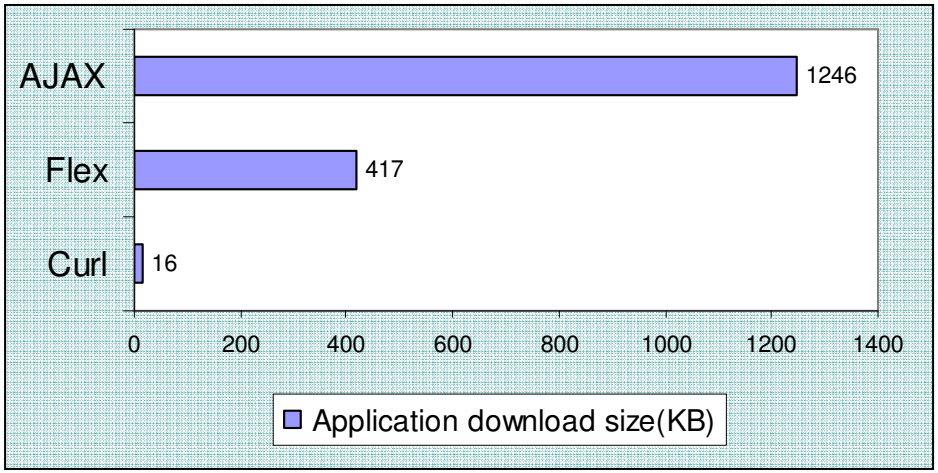
Can your RIA platform:

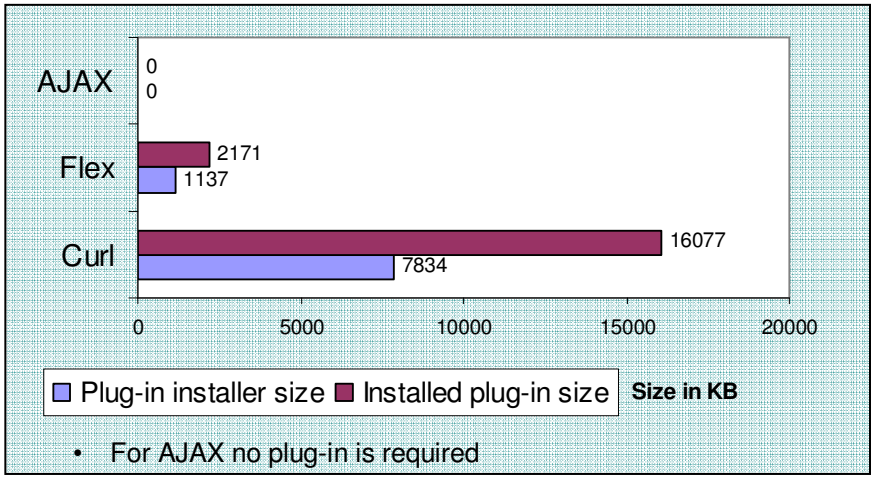
1. Handle complex graphics required in reports and data visualizations?
2. Handle large data sets and process them on the client with high performance?
3. Scale adequately with 10s of thousands of users?
4. Address the strict security requirements of the enterprise?
5. Provide online/offline operation?
6. Support SOA and WOA standards?
7. Help with migration from legacy apps?
8. Support the broad spectrum of clients and browsers?
9. Provide a rich set of development tools?
10. Provide tools to reduce maintenance costs?

A comparison of technologies

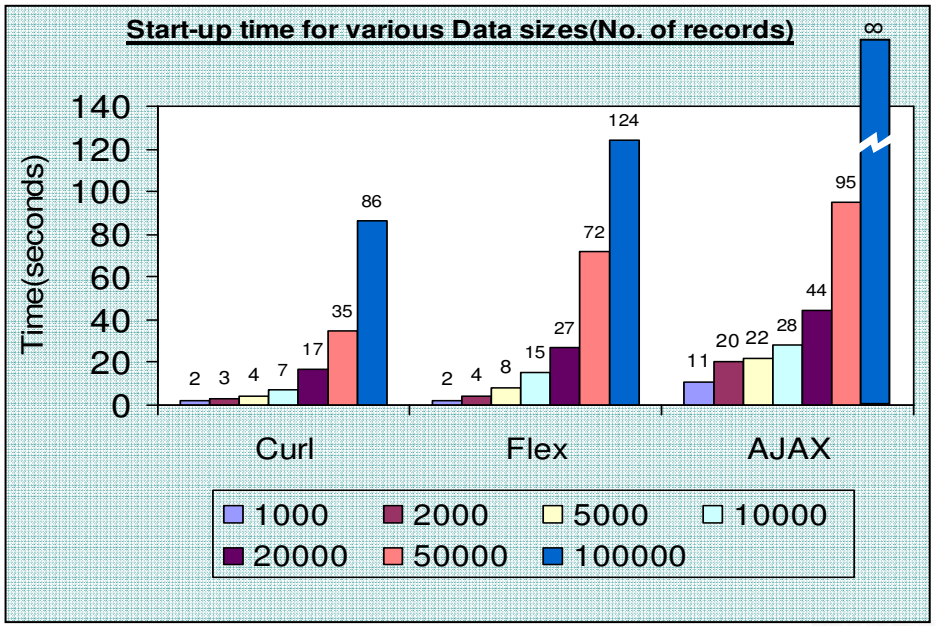
- Evaluate 3 RIA technologies platforms
  - Curl
  - Flex
  - ASP.NET AJAX
- By measuring factors contributing to
  - Ease of learning
  - Ease of design
  - Ease of development
  - Runtime performance
- Done by Sonata, a leader in Outsourced Software Development
  - Team of 4 people in 2 months
  - Results in a detailed 55-page report with code samples

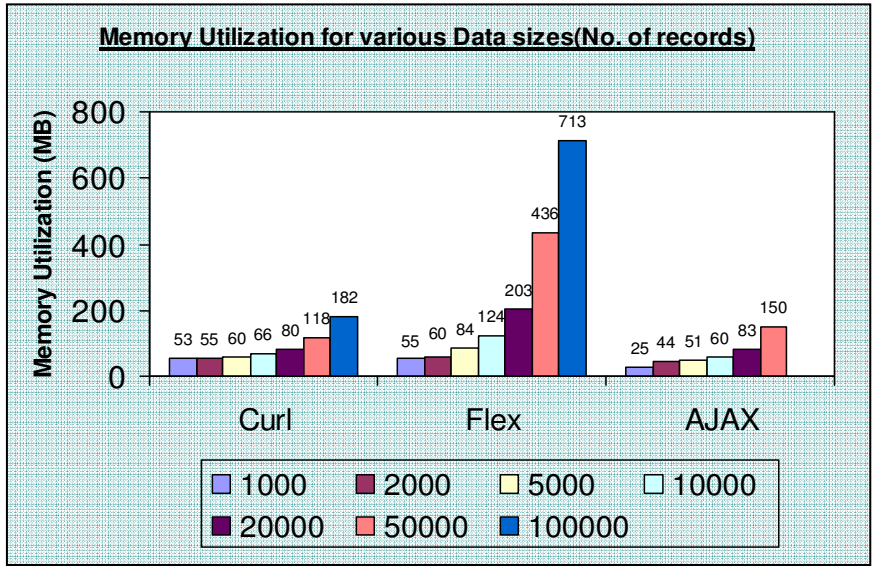
Study's sample findings





- For AJAX no plug-in is required

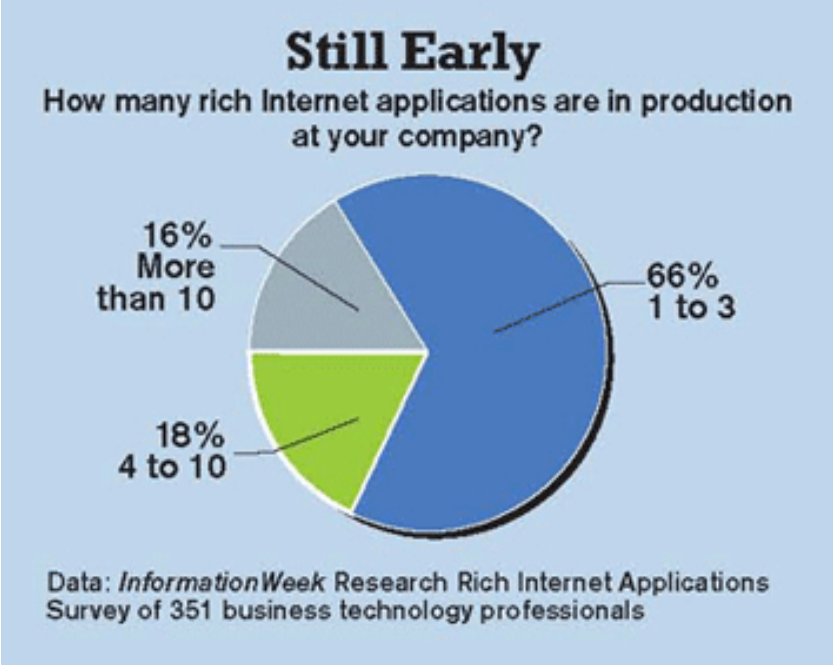




Source: RIA Development Platforms: Curl, Flex and AJAX – A Comparison. Sonata Software, August, 2007

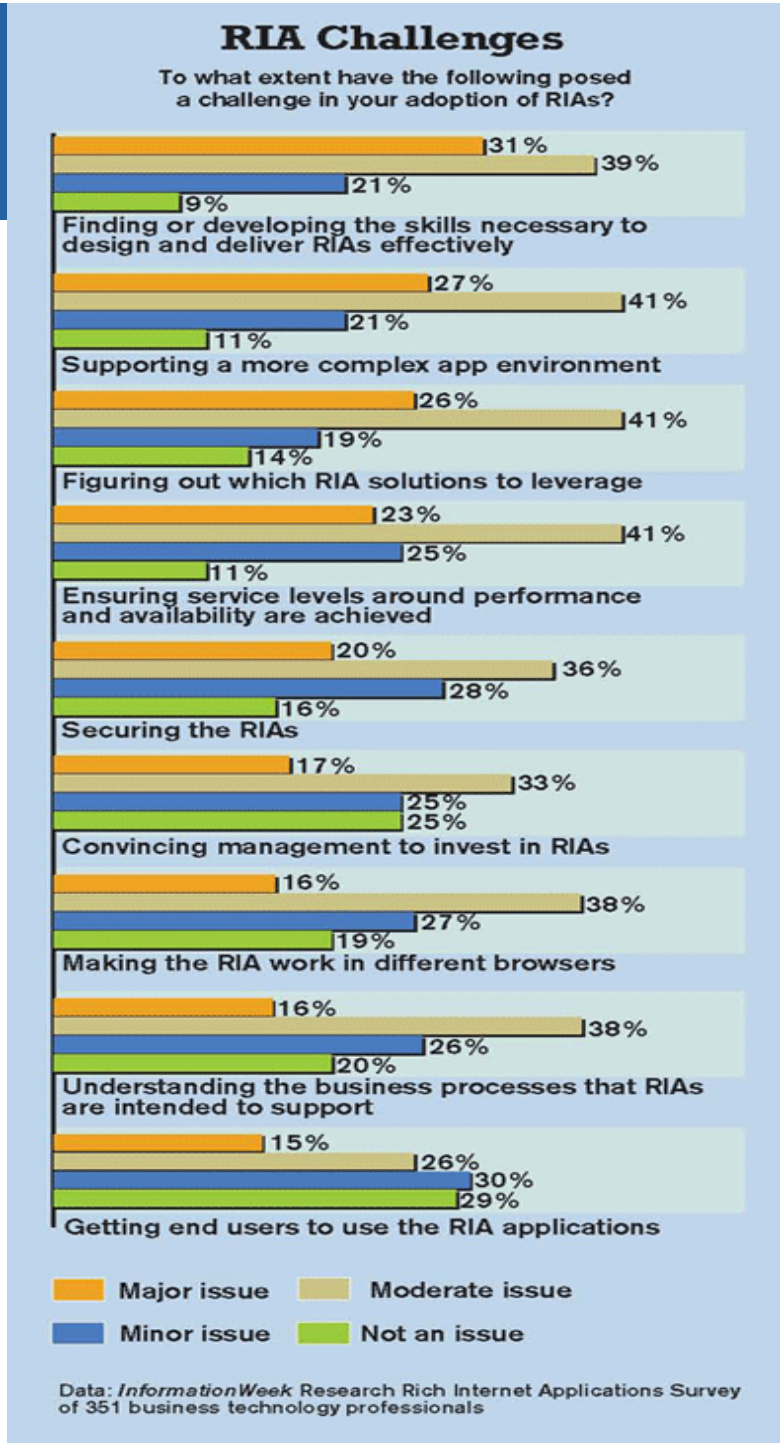
Closing Remarks

RIA Challenges

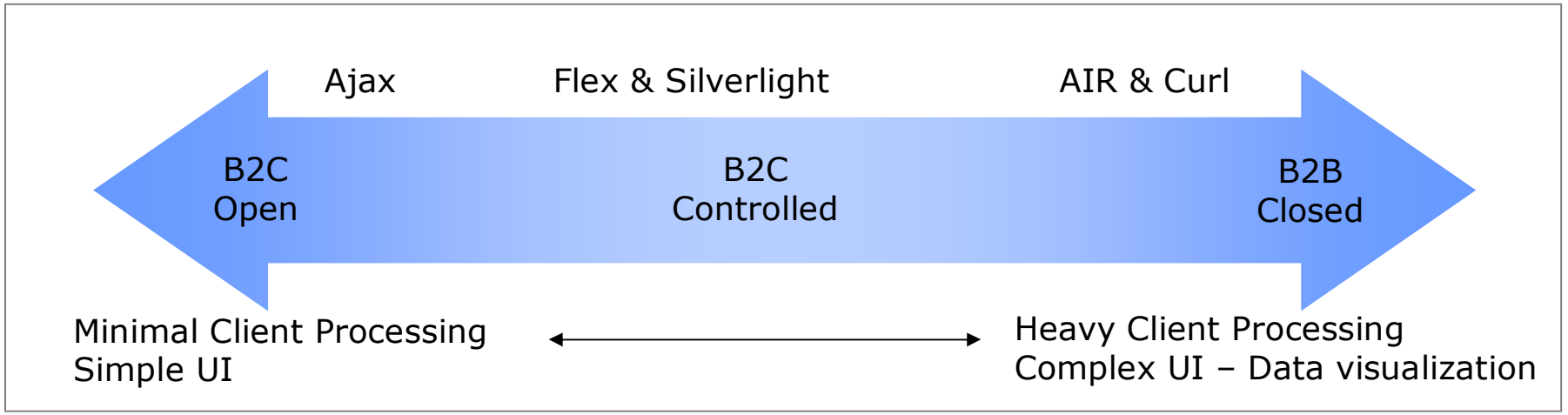


Key Issues

RIA skills, Complex Apps,
Performance,
Availability, Security,
Management Buy-in,..



RIA platform spectrum



- Application profiles
  - B2B – Extended enterprise
  - B2E – Employee tools
  - B2C – SaaS, Consumer tools
- Curl has about 400 enterprise class customers
  - B2E, B2B accounts for about 80-90%

Summary

- The term RIA is used broadly across the entire application spectrum
- Enterprise RIA has stringent needs compared to the general RIA
  - Expectations based on client-server experience
- Convergence of Web apps and Desktop apps
  - Driving new set of RIA requirements
- Only four players addressing enterprise needs
  - Curl has the largest number of enterprise mission-critical deployments so far