

# 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

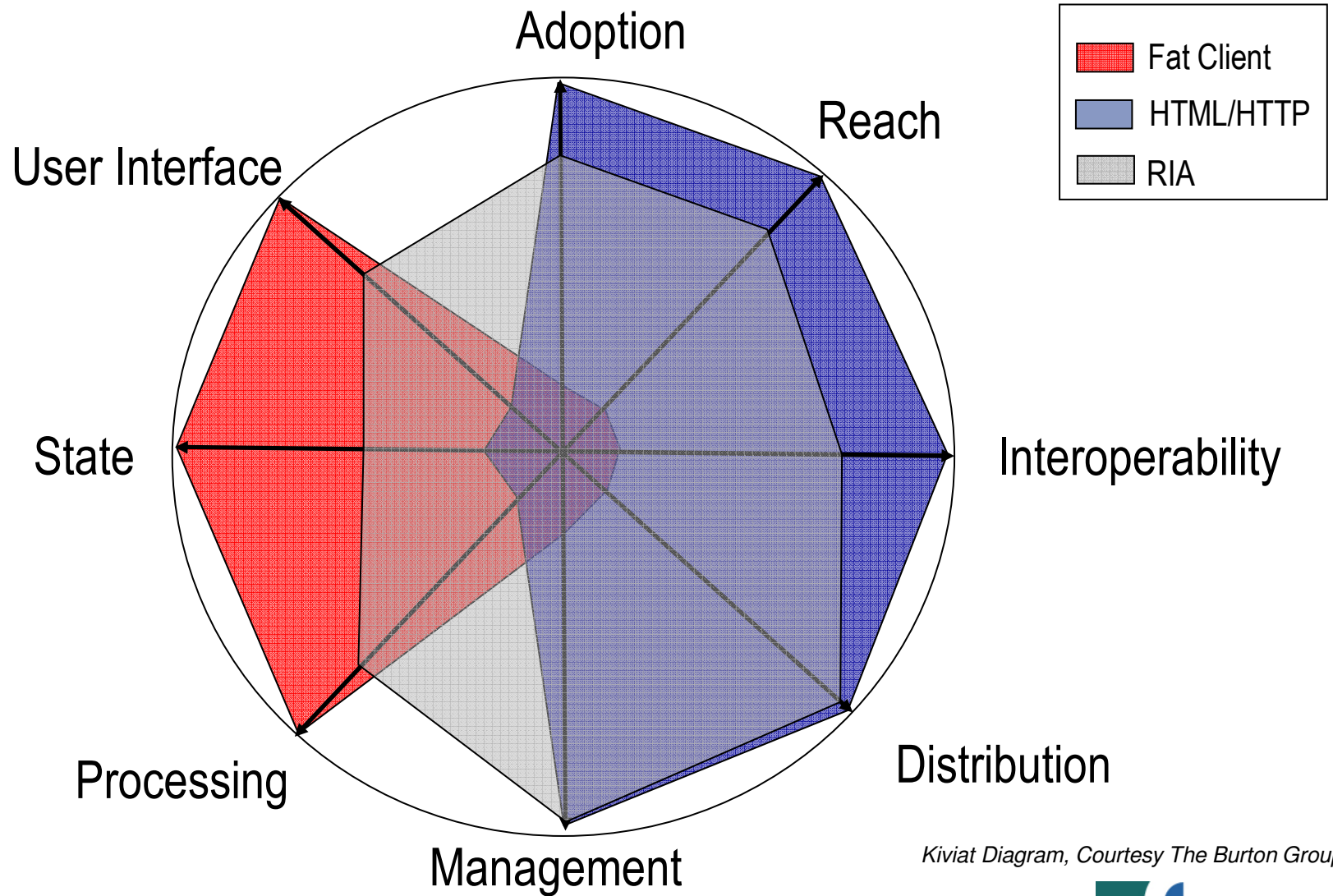
# Rich Internet Application (RIA)

- 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



*Kiviatt Diagram, Courtesy The Burton Group*



# Why RIA? – from a recent survey

## Customers Come First

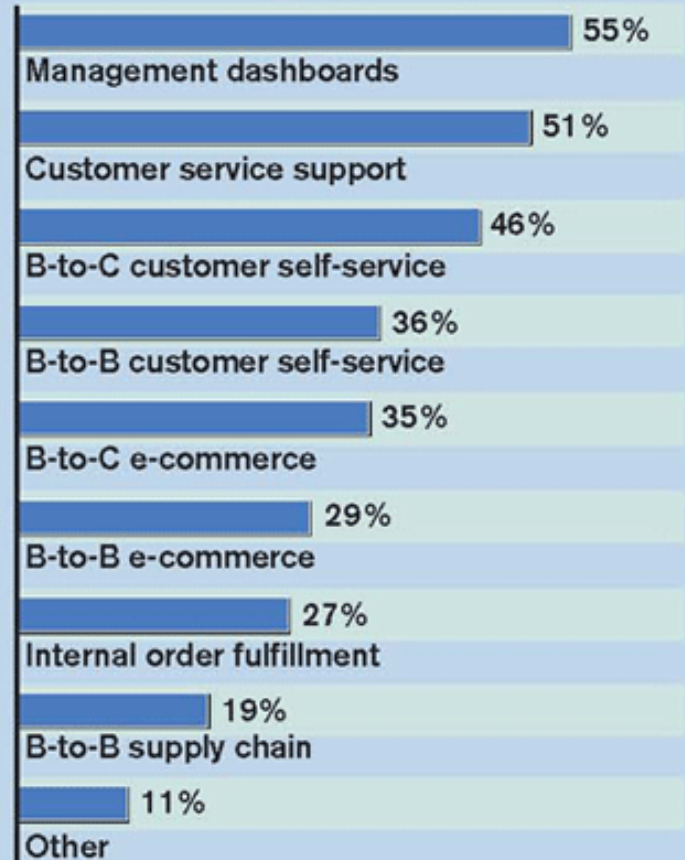
What prompted your organization to adopt RIAs?



Data: *InformationWeek* Research Rich Internet Applications Survey of 351 business technology professionals

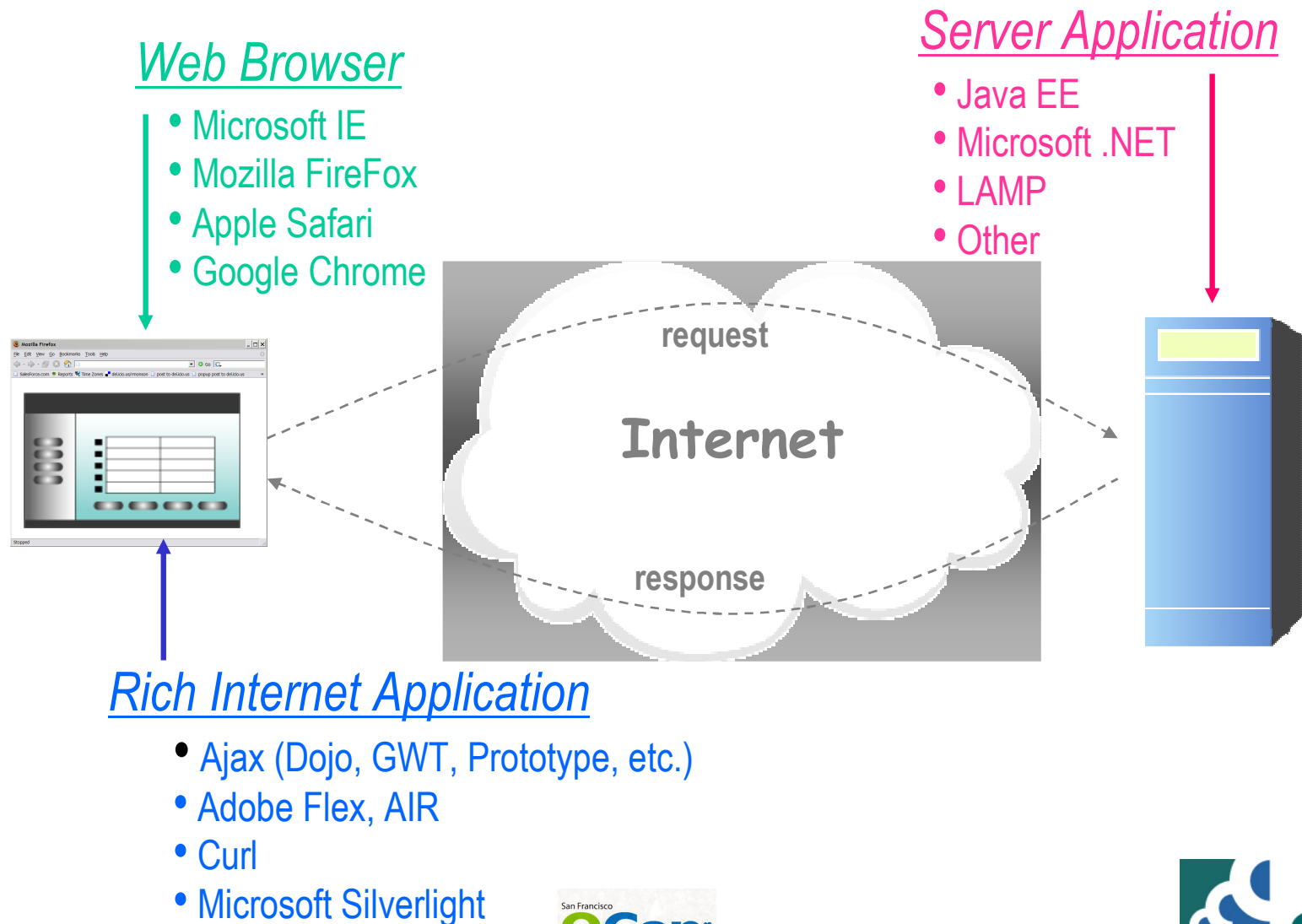
## In The Pipeline

What types of apps is your organization currently developing or planning to develop?



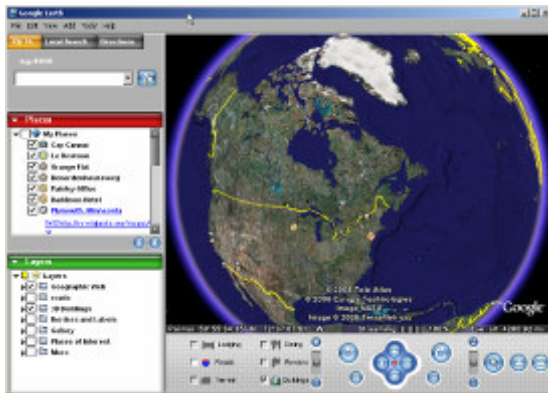
Data: *InformationWeek* Research Rich Internet Applications Survey of 351 business technology professionals

# The RIA Technology Landscape



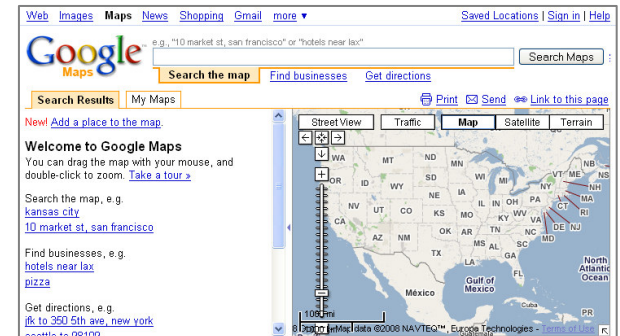


# New Trend in Client Architecture



Rich UI

RIA, Web 2.0, Ajax



Client-Server

Scripting, CSS, DOM

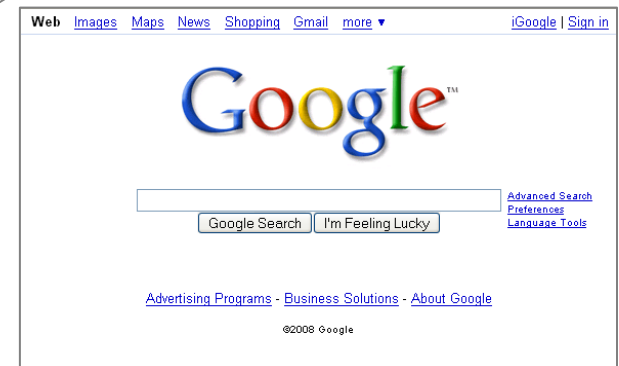


Widgets



Tiny floating applets

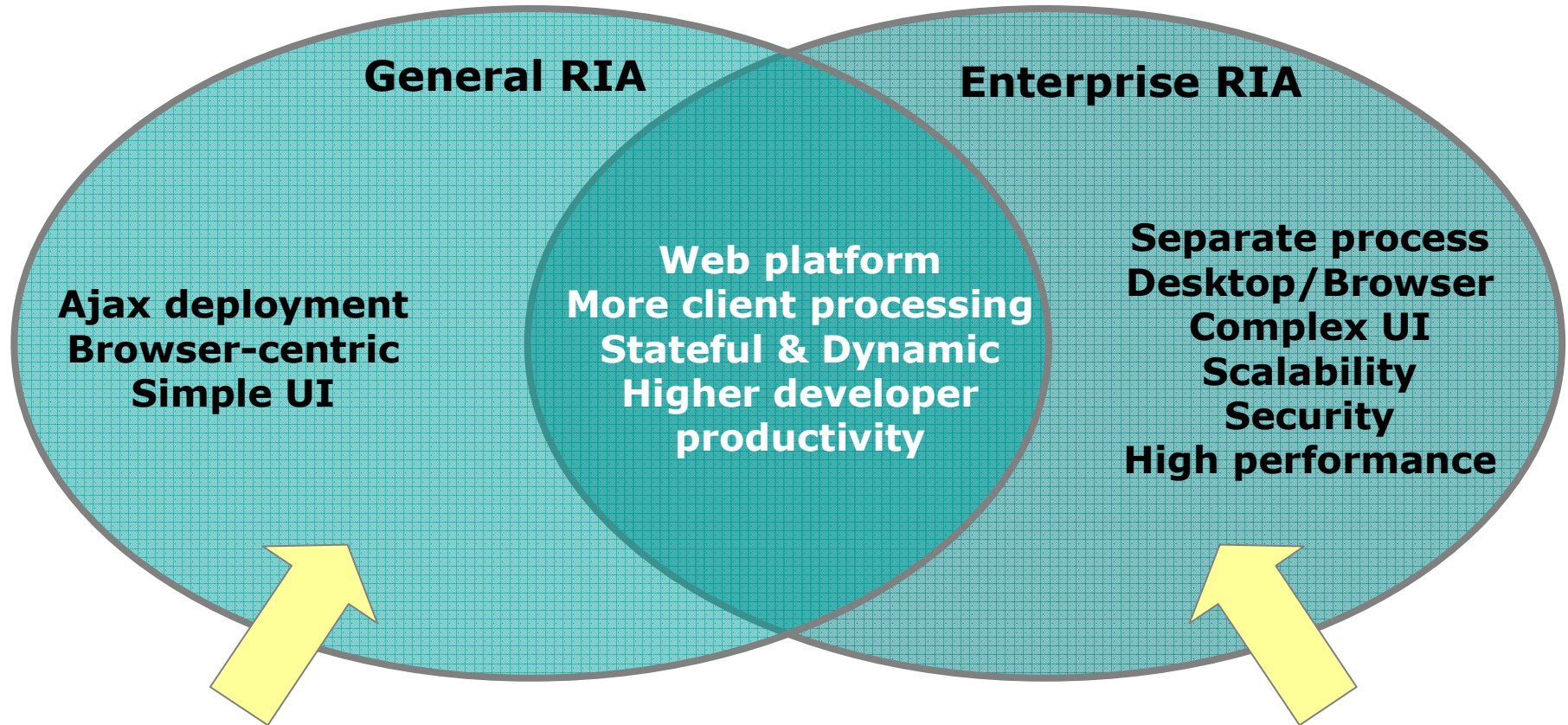
HTML, Web 1.0





# What is Enterprise RIA?

# General RIA vs. Enterprise RIA

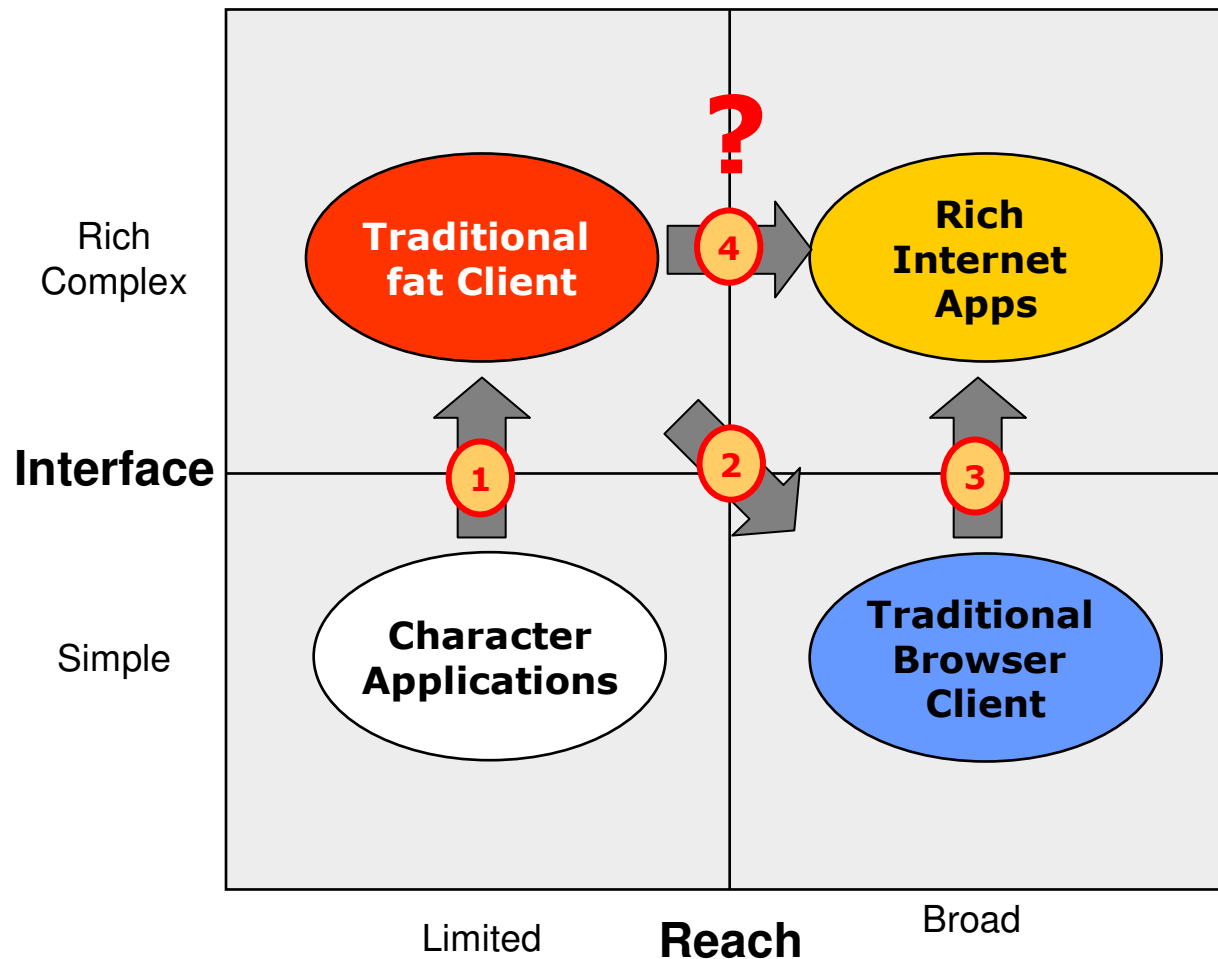


**Shift from  
Thin Client, Web 1.0**

**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)



Bank of Tokyo-Mitsubishi UFJ

## - 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

# Screen View 1

かへるく資産運用

ファイル(F) 編集(E) 移動(O) お気に入り(A) ヘルプ(H)

CUAL.

サービス連携情報 残高推移 財産情報 シミュレーション ポートフォリオ分析 画面設定 ヘルプ

残高推移 ログイン日付: 2004/6/29 財産分類 ヘルプ 終了

資産のポートフォリオ - 6月 -

負債のポートフォリオ - 6月 -

財産残高推移

普通預金  定期預金  
 外貨預金  投資信託  
 株式  その他資産  カードローン  カーローン

表示単位(円)

グラフ	項目	2003/7	8月	9月	10月	11月	12月	2004/1	2月
<input type="button" value="CLICK"/>	[-] 資産	766,035	786,458	820,260	593,071	624,281	637,433	649,543	659,31
<input type="button" value="CLICK"/>	[+] 普通預金	400,000	410,909	429,080	175,000	187,000	198,000	199,000	201,11
<input type="button" value="CLICK"/>	[+] 定期預金	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,00
<input type="button" value="CLICK"/>	[+] 外貨預金	197,834	207,348	222,979	249,870	269,080	271,232	282,342	290,00
<input type="button" value="CLICK"/>	[+] 投資信託	37,001	37,001	37,001	37,001	37,001	37,001	37,001	37,00
<input type="button" value="CLICK"/>	[+] 株式	31,200	31,200	31,200	31,200	31,200	31,200	31,200	31,20
<input type="button" value="CLICK"/>	[+] その他資産	0	0	0	0	0	0	0	0
<input type="button" value="CLICK"/>	グラフ	2003/7	8月	9月	10月	11月	12月	2004/1	2月
<input type="button" value="CLICK"/>	トータル資産	742,465	699,924	587,839	492,607	389,014	590,955	412,660	474,62

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 実行中 不明なゾーン



# Screen View 2

かへるく資産運用

ファイル(F) 編集(E) 移動(O) お気に入り(A) ヘルプ(H)

CUAL.

サービス連携情報 残高推移 財産情報 シミュレーション ポートフォリオ分析 画面設定 ヘルプ

サービス連携情報 ログイン日付: 2004/6/29 財産分類別 月次残高取込 ヘルプ 終了

金融機関	口座属性	口座	通貨	残高	取得金額/ 引出可能額
資産				843,618	141,540
普通預金				298,475	99,348
ちきゅう銀行 新宿中央支店	普通	1665790		1,000	0
ちきゅう銀行 成城支店	普通	5027056		207,027	0
ちきゅう銀行 成城支店	貯蓄	1097962		100	0
古都銀行 新宿中央	普通	3848565		2,282	2,282
古都銀行 新宿中央	貯蓄	3857928		0	0
未来銀行 成城支店	普通(総合)	3538572		0	0
資産合計				843,618	
金融機関	カード名	支払額合計	ポイント残高		
負債				126,096	674
カードローン				126,096	674
ちきゅうカード	ちきゅうカード	0	16		
幸福カード	幸福ゴールドカード	126,096	658		
負債合計				126,096	
財産(資産 - 負債)				合計	717,522

財産分類別残高

表示単位(円) 0 60,000 120,000 180,000 240,000 300,000

資産/負債残高

表示単位(円) 0 180,000 360,000 540,000 720,000 900,000

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実行中

不明なゾーン



# 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)



PAISLEY

Software for Governance,  
Risk & Compliance

## - 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



PAISLEY

Software for Governance,  
Risk & Compliance

## - 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





PAISLEY

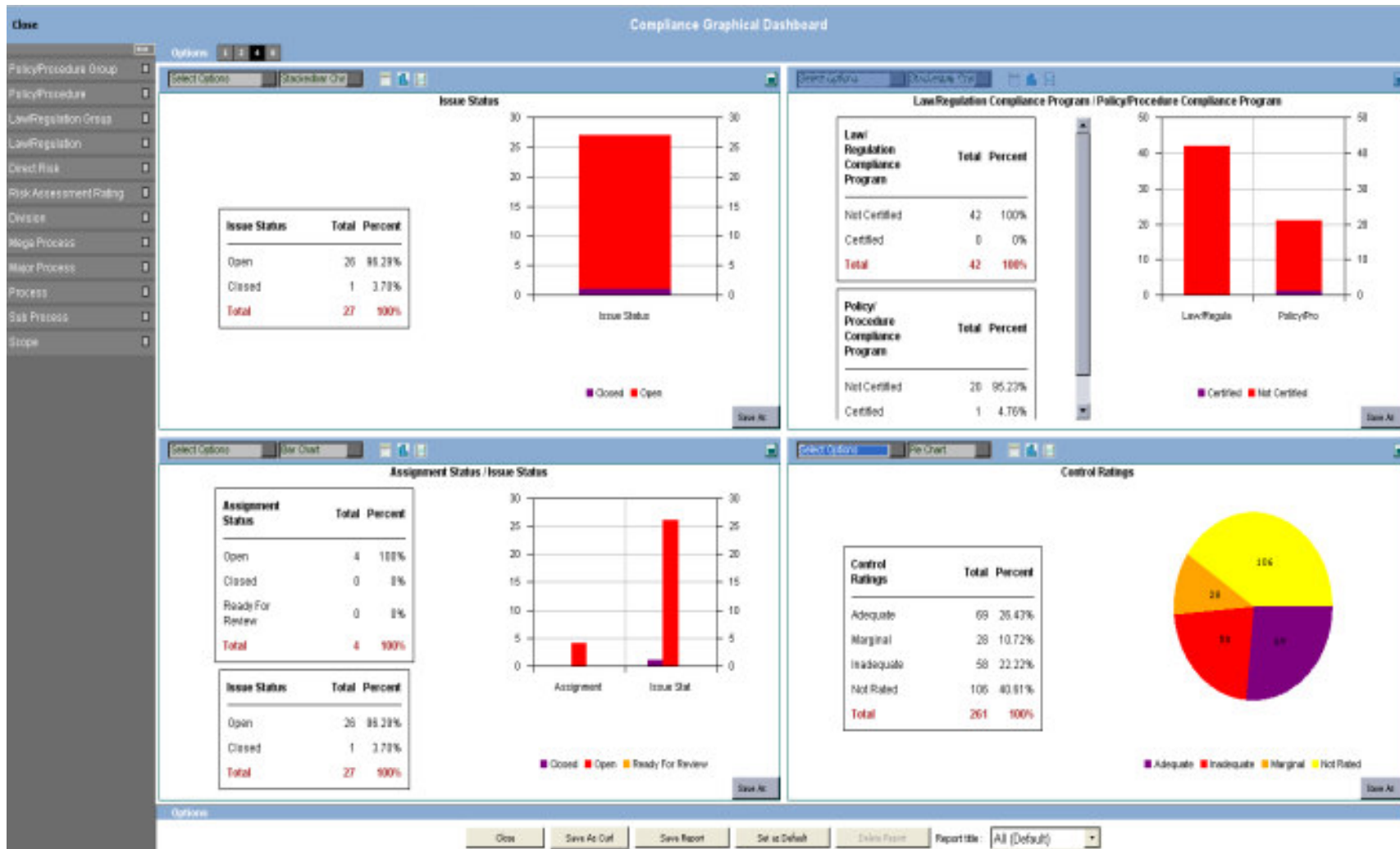
Software for Governance,  
Risk & Compliance

## - 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



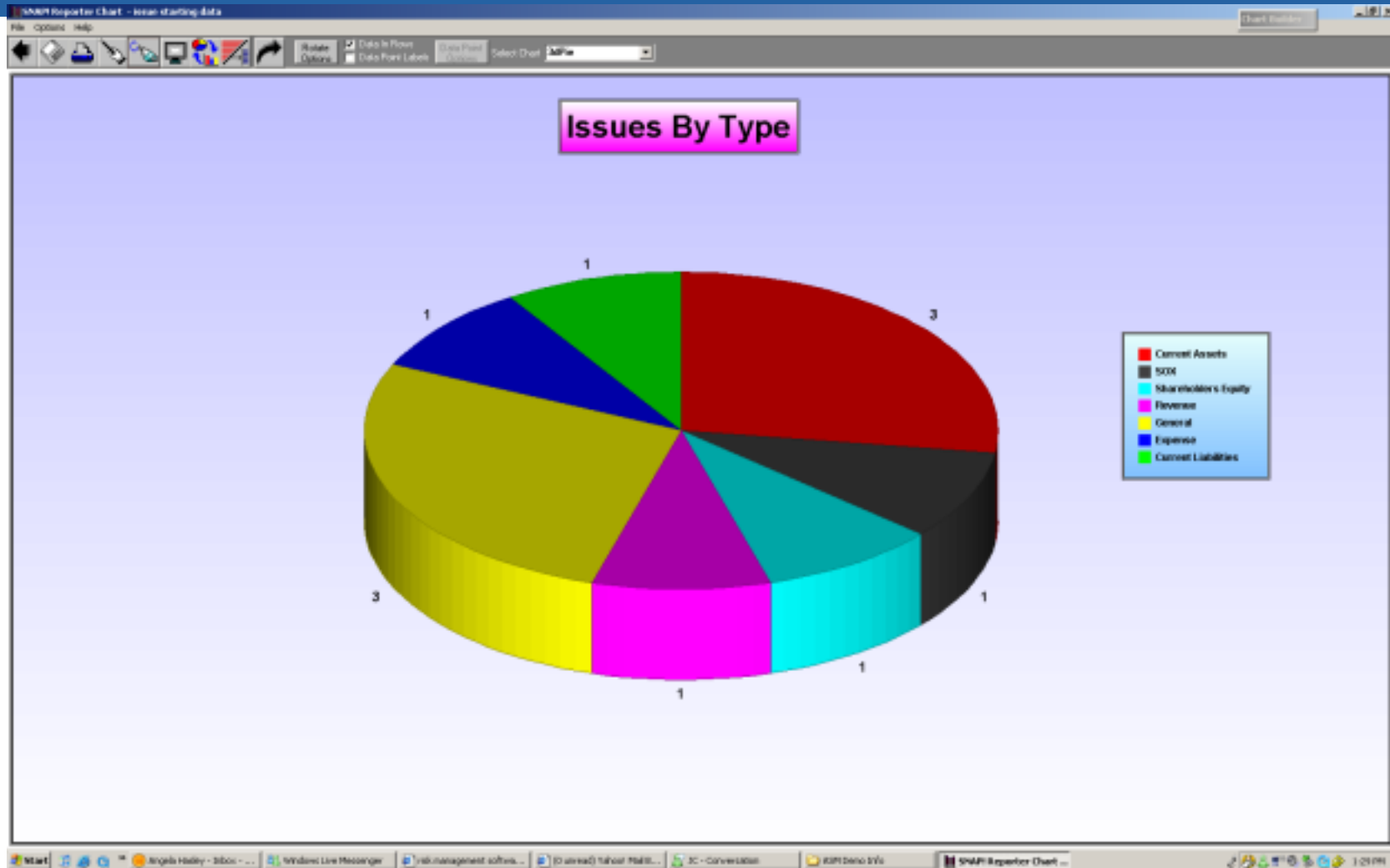
# Graphical Dashboard



# Enterprise HeatMap

Risk Factors By Compliance Program				
Display	Law & Regulation	Complexity Of Compliance	Understanding of Requirements	Inherent Risk of Non-Compliance
<input type="checkbox"/> Hide	EEO - 501 & 505 Rehabilitation	Medium	Medium	High
<input checked="" type="checkbox"/> Display	EEO - ADA	Not Rated	Not Rated	Not Rated
Law & Regulation	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

# Graphing



# Four Examples

1. **Finance** – a bank providing aggregate asset management to customers (B2C)
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- 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)

- 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





## - 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*

- 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)



# Glazier User View2

ガラス工事見積システム **GLazier** [グレイザー]

見積入力 一般マスタ 単価マスタ 物件照会 CSV変換処理 単価一括変更 システム管理 GLazierヘルプ バージョン情報 ログアウト

法人ID: ユーザーID:

表紙入力 明細入力 集計入力 プレビュー 原価集計一覧

見積No. 工事名 GLazier工事 集計処理 表示列選択 列位置記憶 デフォルト

<input type="checkbox"/>	小計	建具符号	箇所	姿図	見積品略コード	計	見積品略名	W	H	面積ランク	数量	数単	見積材料単価
<input type="checkbox"/>	1	T01	AW-1		FL5	1	フロートガラス 5mm	1234	1234	2.18	10	枚	¥6.
<input type="checkbox"/>	2	T01		5	PW	2	網入磨ガラス 6.8mm			2.18	10	m <sup>2</sup>	¥35.
<input type="checkbox"/>	3	T01	AW-2		AP6	1	複層フロート3mm 層6 フロート3mm	1300	1300	2	10	枚	¥40.
<input type="checkbox"/>	4	T01			FW	1	網入型ガラス 6.8mm	1111	1222	2.18	5	枚	¥10.
<input type="checkbox"/>	5	T02		2	FW	1	網入型ガラス 6.8mm	1111	1222	2.18	5	枚	¥10.
<input type="checkbox"/>	6	T02			A12P10	1	複層フロート5mm 層12 フロート5mm	1212	1212	2	3	枚	¥40.
<input type="checkbox"/>	7	T03	AW-3		FL5	2	フロートガラス 5mm			4.45	10	m <sup>2</sup>	¥15.
<input type="checkbox"/>	8	T03		10	A12P10	1	複層フロート5mm 層12 フロート5mm	1212	1212	2	3	枚	¥40.
<input checked="" type="checkbox"/>	9	T03			AP6	3	複層フロート3mm 層6 フロート3mm	1000	1000	2	10	枚	

9 of 9

パターン	見積品略コード	計	見積品略名	辺	面	個数	数量	数単	見積材料
1	C66	A	コーキング 6X6mm	4辺	両面		80	m	
2	CL1	C	クリーニング 1回拭き		両面		20	m <sup>2</sup>	

小計 T03 小計-3 単面積 1 m<sup>2</sup> 総面積 10 m<sup>2</sup> 異形No. 15 異形

見積材料金額 ¥2,195,440 見積施工合計 ¥0 原価材料合計 ¥896,060 原価施工合計 ¥0 異形掛率 100

明細行ソートキー K 30 30  明細行ソートキーを使用する

F2: 特殊機能 F3: 項目複写 F4: 行複写 F5: F6: 加工追加 F7: 加工削除 F8: 明細追加 F9: 明細削除 F10: ←タブ F11: タブ→ F12: 登録

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# Glazier User View3

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**GLazier** [グレイザー]

見積入力 一般マスタ 単価マスタ 物件照会 CSV変換処理 単価一括変更 システム管理 GLazierヘルプ バージョン情報 ログアウト

法人ID: ユーザーID:

表紙入力 | 明細入力 | 集計入力 | プレビュー | 原価集計一覧

見積No. 2200000044 - 0 GLazier工事

発行日 2005 / 12 / 27 見積書パターン 0 通常見積書 用紙 A4縦 敬称 御中 自社名 大

表紙 出力設定		明細書 出力設定		集計表 出力設定	
<input checked="" type="checkbox"/> 表紙	小計出力 小計あり	<input checked="" type="checkbox"/> 標準	加工出力 集計毎	<input checked="" type="checkbox"/> 標準	
<input type="checkbox"/> 別紙	罫線出力 罫線なし	<input type="checkbox"/> 仕様	加工出力 集計毎	<input type="checkbox"/> 原価	
		<input type="checkbox"/> 詳細	加工出力 集計毎		
		<input type="checkbox"/> 原価	加工出力 集計毎		

印刷

表紙 | 明細書(標準) | 集計表(標準)

## 御 見 積 書

見積書番号 : 2200000044-0  
平成 17 年 12 月 27 日 1 / 1

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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)

- 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*



- 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

- 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 Search - Windows Internet Explorer

C:\#VOEデモ\*start.curl

Google

リンク Windows リンクの変更 MSN.co.jp Yahoo! JAPAN ジョルダン株式会社 エキサイト 翻訳 Google マップ

Google 検索

VOE Search

**Panasonic** ideas for life

**VOE Search**

オプション ヘルプ ログアウト  
VOEチーム  
松下 太郎さん

修理部品 問合せ 技術文書 掲示板 変化点管理

**検索条件**

事業部: すべて 処理区分: 区分1 期間【集計】: 過去3ヶ月 指摘症状: 録画 再生

機種カテゴリ: DVD-REC  該当キーワードだけ対象にする

集約品番: -----指定なし-----  排他

期間【部品】: 2007 / 05 / 08 ~ 2007 / 08 / 07

すべてクリア グラフ表示 部品検索

**キーワード集計**

よく使う検索条件

キーワード集計

キーワード	出現率	表示
DVD-REC		
録画	28.3%	
再生	16.3%	
再生	16.3%	
HDD	10.1%	
予約	5.1%	
DVD	5.0%	
画像	4.3%	
ディスク	4.1%	
表示	4.0%	
電源	2.1%	
DVD-RAM	2.1%	
DVD-R	2.0%	
画面	2.0%	
番組	1.2%	
ダビング	1.2%	
消去	1.1%	
音声	1.1%	
音	1.0%	

**修理部品情報**

WSNO 未再現(5) 再現(5) 未再現一覧 CSV出力 追加キーワード 問合せ 技術文書 掲示板

50.0% /10

【 16 件 】

集約品番	部品品番	部品品名	回路No	発生率
集約品番1	部品品番1	回路4		17.1%
集約品番1	部品品番2	回路6		11.9%
集約品番1	部品品番3	回路10		10.0%
集約品番1	部品品番4	回路1		8.1%
集約品番1	部品品番5	回路1		5.3%
集約品番1	部品品番6	回路13		5.2%
集約品番1	部品品番7	回路11		3.2%
集約品番1	部品品番8	回路17		2.3%
集約品番1	部品品番9	回路2		1.7%
集約品番2	部品品番10	回路4		1.5%

**部品グラフ**

部品品番: 部品品番7 期間: 過去12ヶ月

指摘症状情報 部品グラフ

MESSAGE

読み込み中...終了しました (0.477s)

不明なゾーン

# VOE – User View 2

The screenshot displays the VOE Search web application interface within a Windows Internet Explorer browser window. The browser's address bar shows the URL 'C:\VOEデモ#start.curl'. The page header includes the Panasonic logo and the 'VOE Search' title. Below the header, there are navigation tabs for '修理部品', '問合せ', '技術文書', '掲示板', and '変化点管理'. The '技術文書' tab is currently selected.

The search interface includes a search condition section with dropdown menus for 'エリア選択' (set to '指定なし'), '集約品番' (set to '指定なし'), and '機種カテゴリ' (set to 'DVD-REC'). A search button labeled '検索' is visible. Below this, a '文書情報集計' (Document Information Summary) section lists various categories, with '修理情報 (3)' (Repair Information (3)) being expanded to show 'DVDレコーダーの修理について'.

The main content area shows a preview of the selected document, titled 'DVDレコーダーの修理について'. The document content includes a red box labeled 'サンプル' (Sample), followed by the text 'ご販売会社 サービス責任者殿' (Dear Sales Company Service Responsible Person), '品質監理部' (Quality Control Department), and the title 'DVDレコーダーの修理について' (About DVD Recorder Repair). Below the preview, there are buttons for '役に立った' (Helpful), '役に立たなかった' (Not helpful), 'お気に入りに追加' (Add to favorites), and '閉じる' (Close).

At the bottom of the browser window, a status bar shows '読み込み中...終了しました (0.477s)' (Loading... finished (0.477s)) and '不明なゾーン' (Unknown zone).

# VOE – User View 3

VOE Search - Windows Internet Explorer

C:\VOEデモ\start.curl

リンク Windows リンクの変更 MSN.co.jp Yahoo! JAPAN ジョルダン株式会社 エキサイト 翻訳 Google マップ

Google 検索 ブックマーク ブロック数: 8 チェック 翻訳 次へ送信 設定

VOE Search

Panasonic ideas for life

VOE Search

オプション ヘルプ ログアウト  
VOEチーム  
松下 太郎さん

修理部品 問合せ 技術文書 掲示板 変化点管理

一覧

分類 ACCアセラー 集計単位 月集計 [ 8 件 ] CSV出力 検索

数量/順位		2005年度									
部品品番	部品品名	05月	06月	07月	08月	09月	10月	11月	12月		
品番1	品名1					5	6	35			
品番3	品名3					10	11	2			
品番4											

グラフ

折れ線

- 品番1 (品名1)
- 品番3 (品名3)
- 品番4 (0)
- 品番6 (0)
- 品番5 (0)
- 品番2 (品名2)
- 品番8 (0)
- 品番7 (0)

MESSAGE 一覧:正常に終了しました。

読み込み中..終了しました (0.477s) 不明なゾーン

# 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:

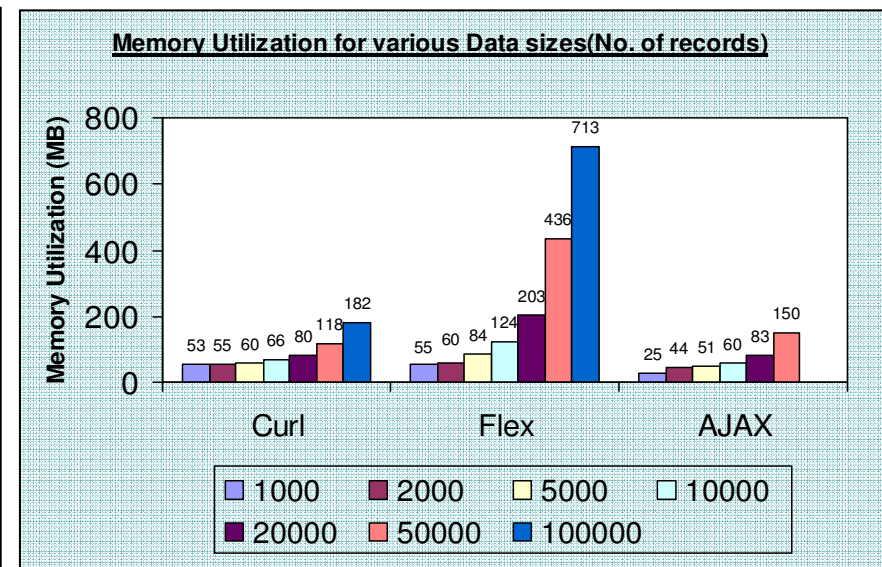
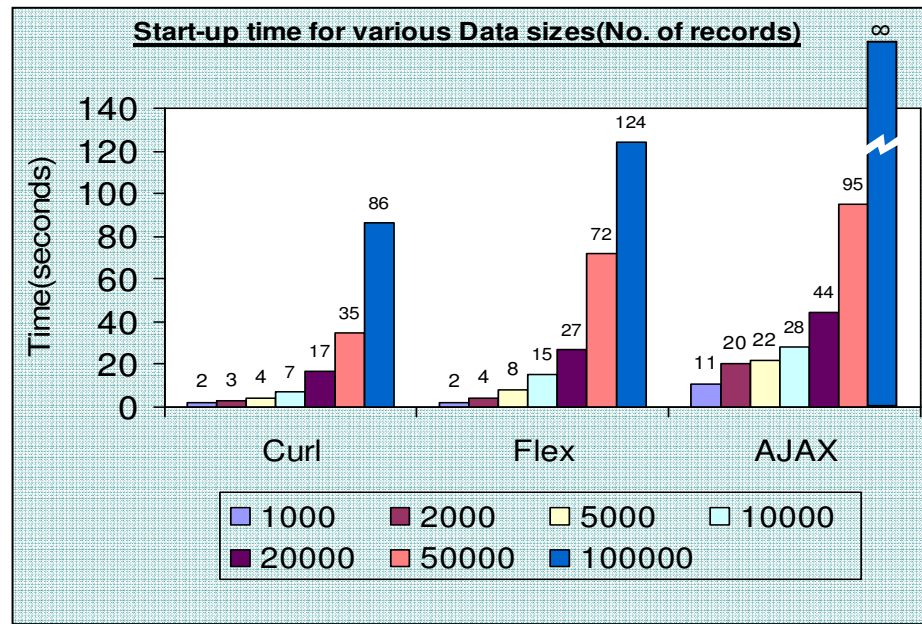
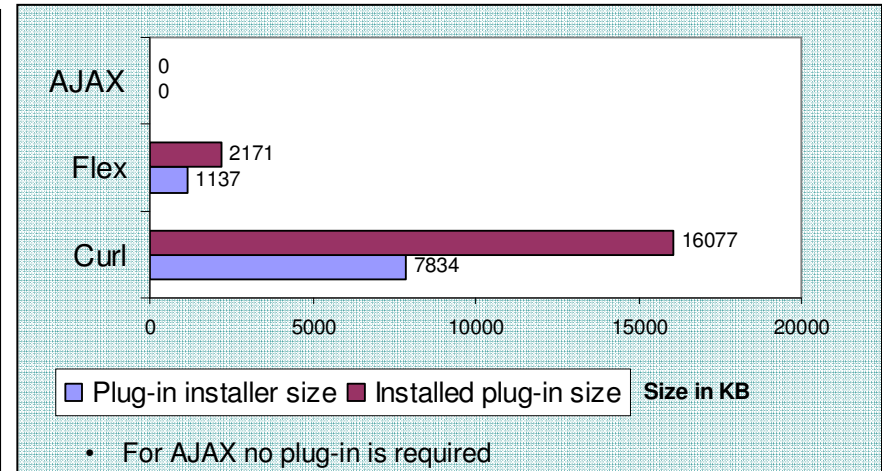
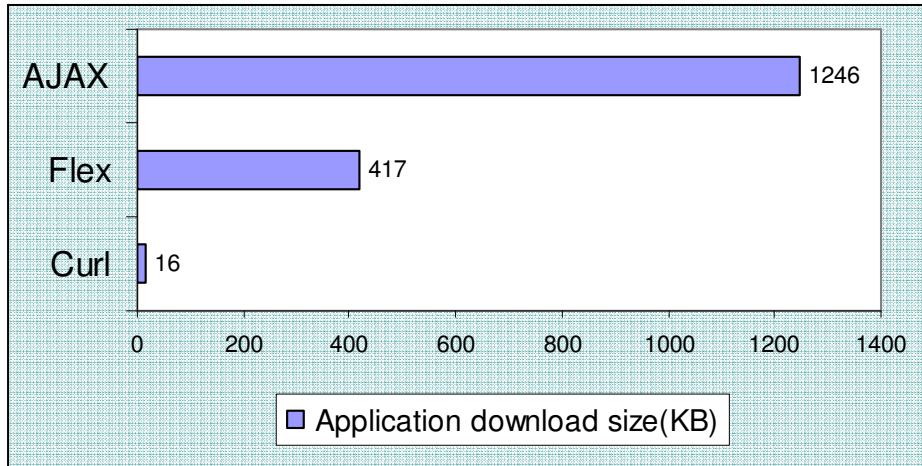
1. Handle complex graphics required in reports and data visualizations?
2. Handle large data sets and process them on the client with high performance?
3. Scale adequately with 10s of thousands of users?
4. Address the strict security requirements of the enterprise?
5. Provide online/offline operation?
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

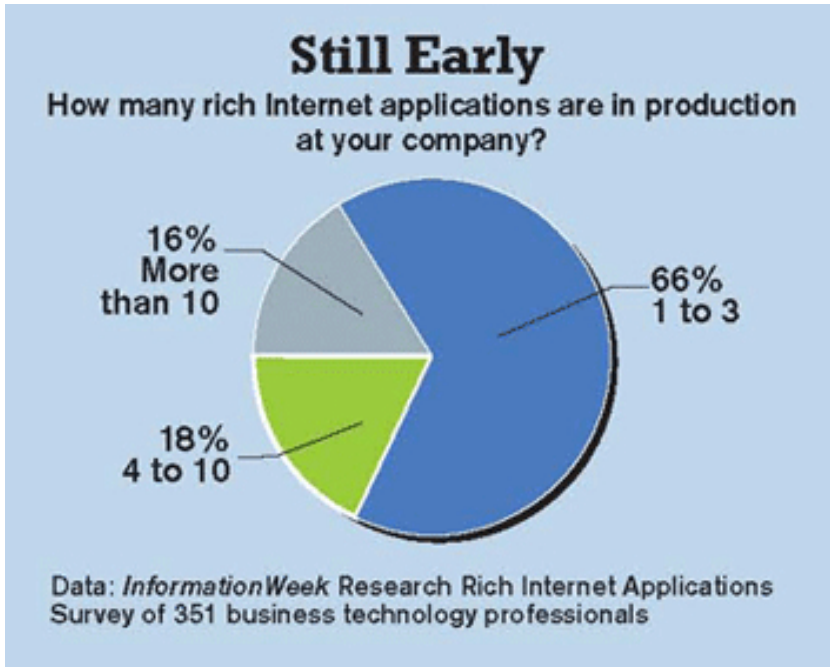
- Evaluate 3 RIA technologies platforms
  - Curl
  - Flex
  - ASP.NET AJAX
- By measuring factors contributing to
  - Ease of learning
  - Ease of design
  - Ease of development
  - Runtime performance
- Done by Sonata, a leader in Outsourced Software Development
  - Team of 4 people in 2 months
  -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

# Study's sample findings



# Closing Remarks

# RIA Challenges

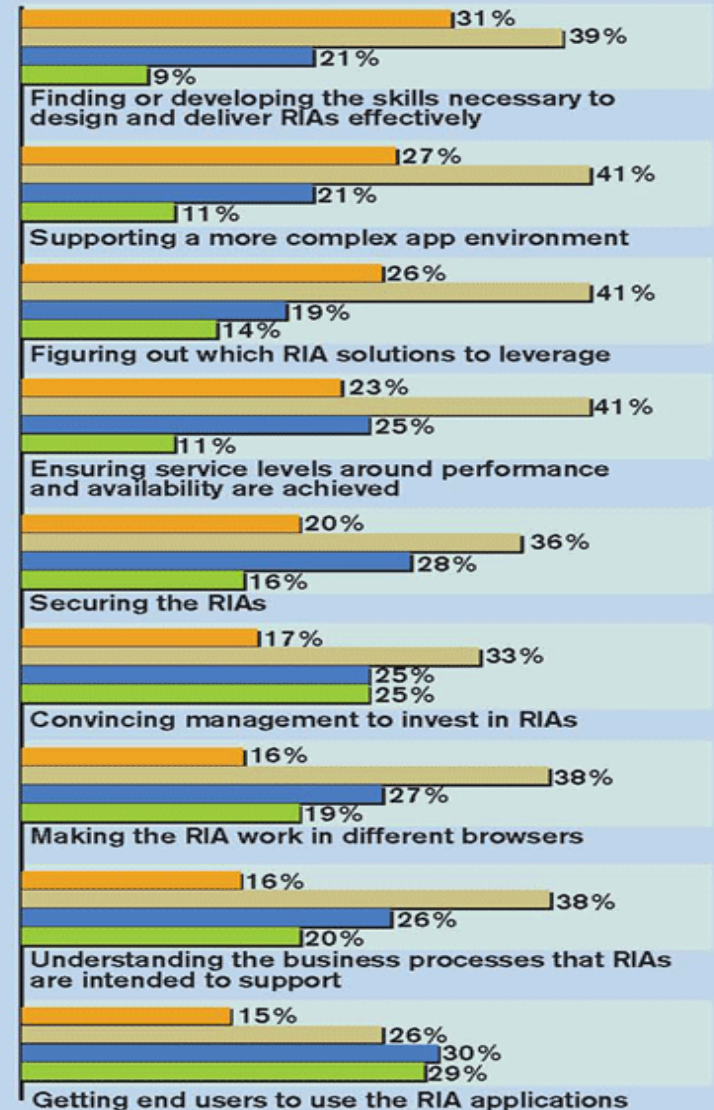


## Key Issues

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

## RIA Challenges

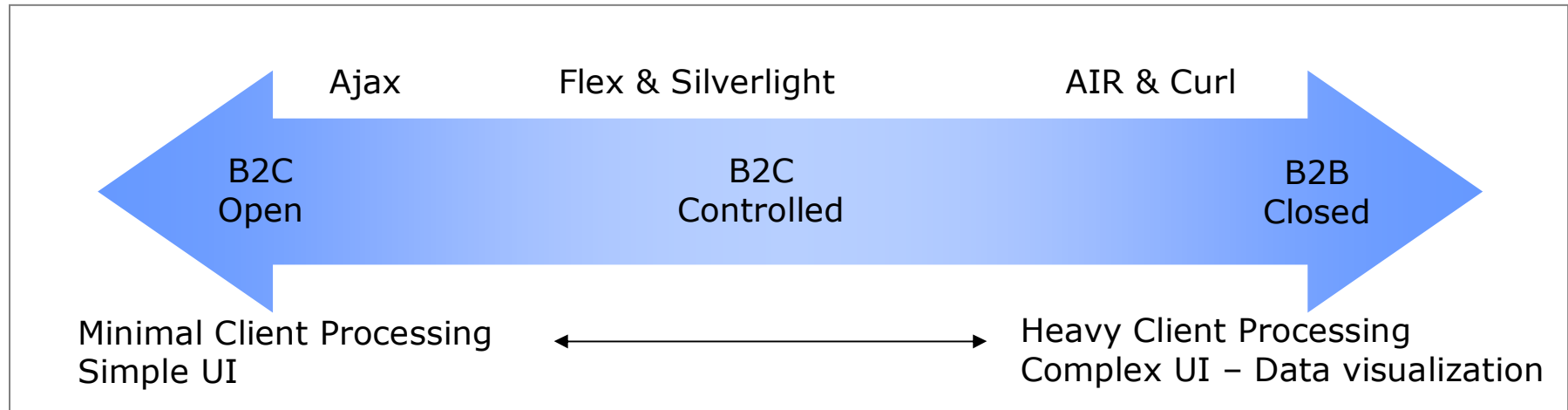
To what extent have the following posed a challenge in your adoption of RIAs?



■ Major issue    ■ Moderate issue  
■ Minor issue    ■ Not an issue

Data: *InformationWeek* Research Rich Internet Applications Survey of 351 business technology professionals

# 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