

Platform as a Service

Enterprise Cloud Computing:

Securing Services & Achieving Application Assurance

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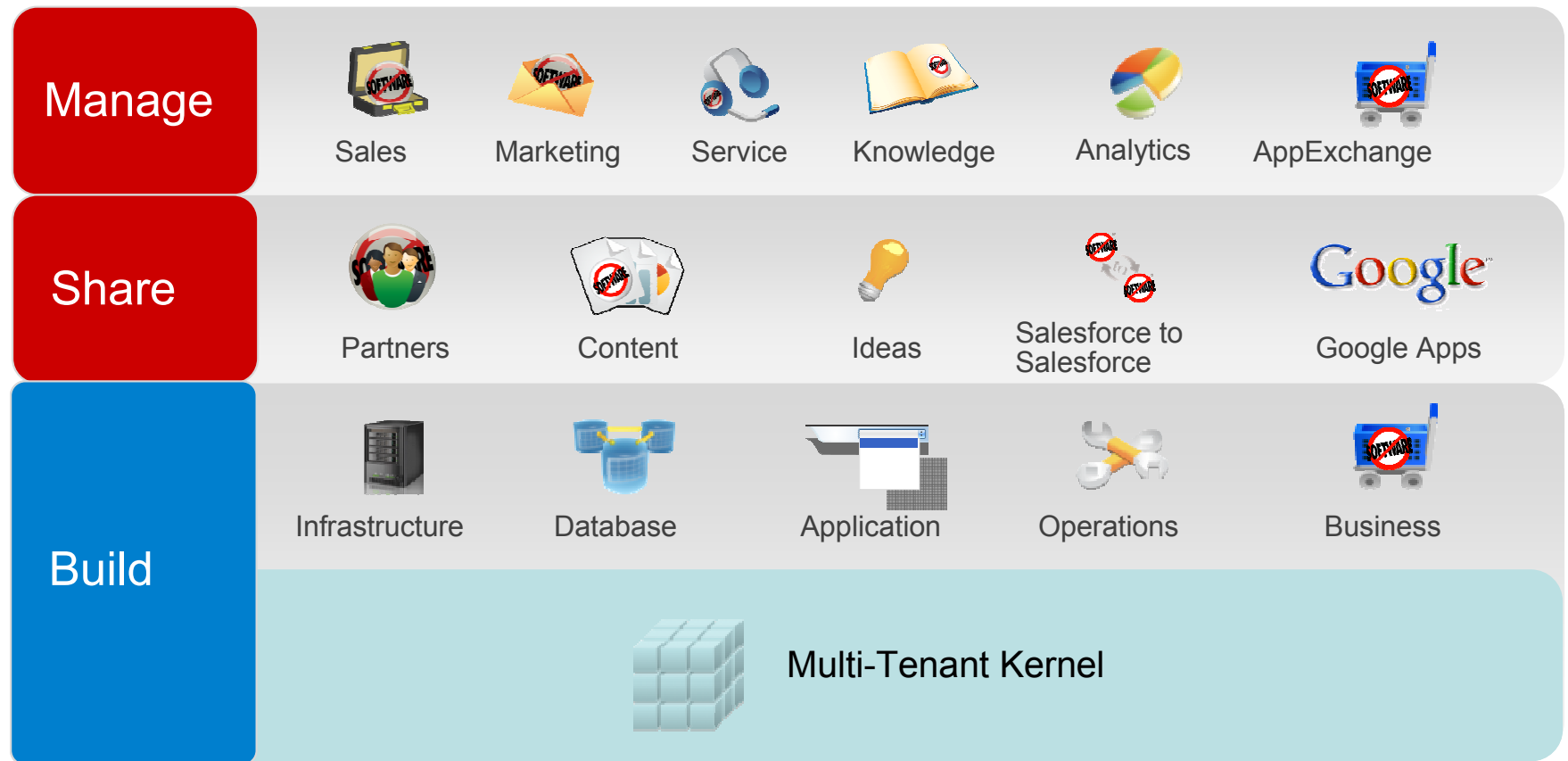
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Cloud Security: Perception and Reality

- Perception
 - Increased risk due to physical location of storage outside the enterprise perimeter
 - Reduced control due to service provider's role in updating software and addressing operational anomalies
 - Shared service infrastructure fosters leakage of data across customer boundaries
- Reality
 - Real-world data theft and loss result, in most cases, from accidental or malicious abuse of authorized privileges rather than from skillful penetrations
 - Metadata-based customization preserves customer control of execution environment, without the risks and disruptions of conventional upgrade processes
 - Built-in security of multi-tenant designs is more reliable and more auditable than traditional, externally applied security measures
- 55% of Chief Security Officers believe cloud assets are *more* secure
(CSO Interchange, London, December 2008)

Varied Applications ⇔ Broadening Needs



New Task Domains ⇔ Rising Expectations

IT governance / Project mgt.



IT Governance and change control
Built in 6 weeks



Product Management
Less than 10 Weeks

Franchise Management



Franchise and Training Management
Less than 6 months



Franchise Management
Less than 3 months

Billing



Custom billing application
Less than 6 months



Quoting, Licensing & Billing
Less than 10 weeks

Recruiting



Recruiting and training application
Less than 6 months



Performance and Time Off
Less than 5 weeks

ERP/Accounting



Commercial Accounting application
Built in 6 months



Custom ERP system
Built in 7 months

Shipping and Distribution



Sample Management application
Less than 6 months



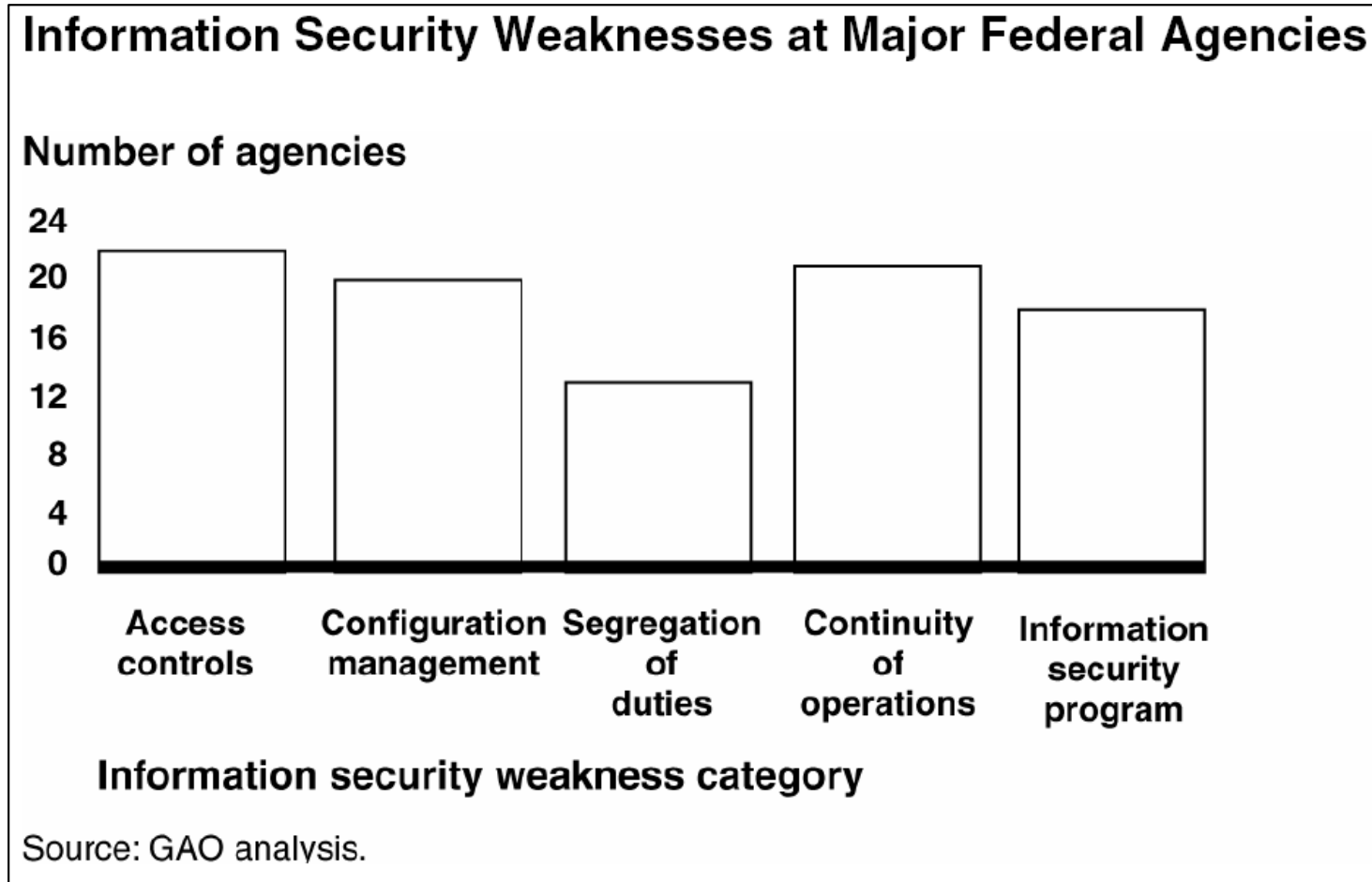
Distribution and Shipping
Less than 3 months

Convenience *and* Confidence at All Scales



Number of Subscribers

“Where” Is Not as Important as “Who” & “How”



- $\frac{4}{5}$ of IT-related attacks arise within the organization (BAI Security)
- Most incidents have their root cause in intentional or non-intentional lack of compliance on the part of employees (Information Risk Executive Council)

Governance: More Eyes, More Agendas

- Expanding legislation, regulation, mainstream mind share
- Rising standard of due diligence
- Desktop/laptop systems carry far too much “state”
 - More data than people actually use
 - Far too much data that user may easily lose
 - More than one version of what should be one shared truth
- SaaS Solutions:
 - Logical view of exactly one database
 - Profile definitions manage privilege sets
 - Activity logs precisely record actions

Governance: More Eyes, More Agendas

Standard Object Permissions

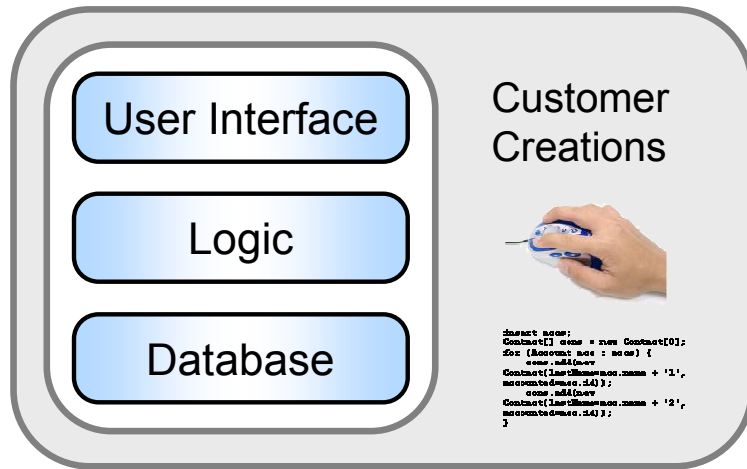
Before assigning this profile to your mobile users, check the online help for the permissions required to access Salesforce remotely using clients such as Force.com Connect Offline.

	Read	Create	Edit	Delete		Read	Create	Edit	Delete
Accounts	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Documents	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Assets	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Leads	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Campaigns	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Opportunities	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Cases	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Price Books	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Contacts	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Products	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Contracts	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Solutions	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Custom Object Permissions

	Read	Create	Edit	Delete		Read	Create	Edit	Delete
Connections	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Pledges	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Households	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Recurring Donations	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Multi-Tenant Metadata: Rigorous and Reversible

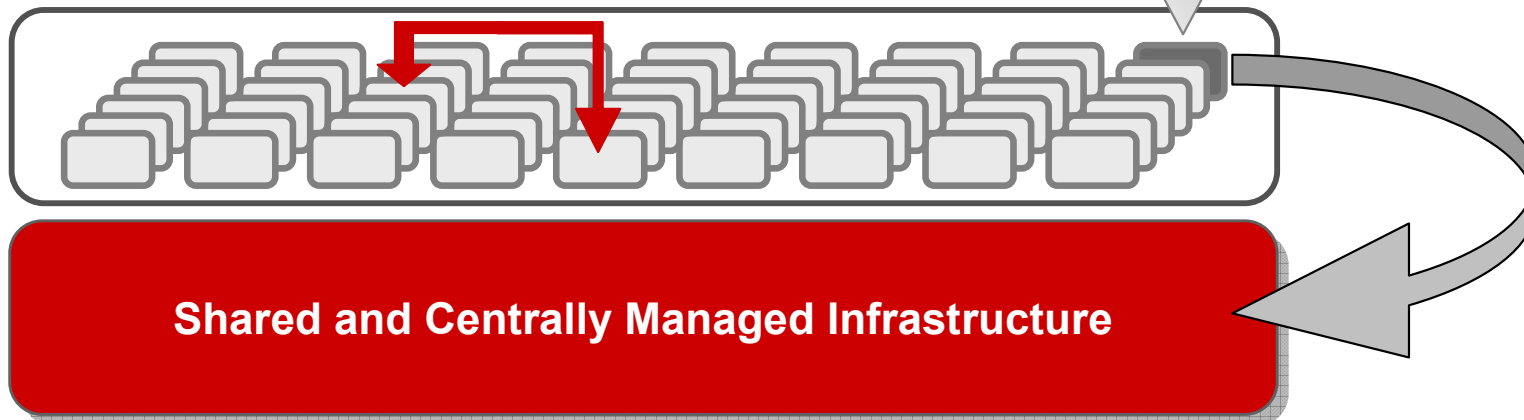


Build strategic applications
Customize any aspect
Upgrade when convenient

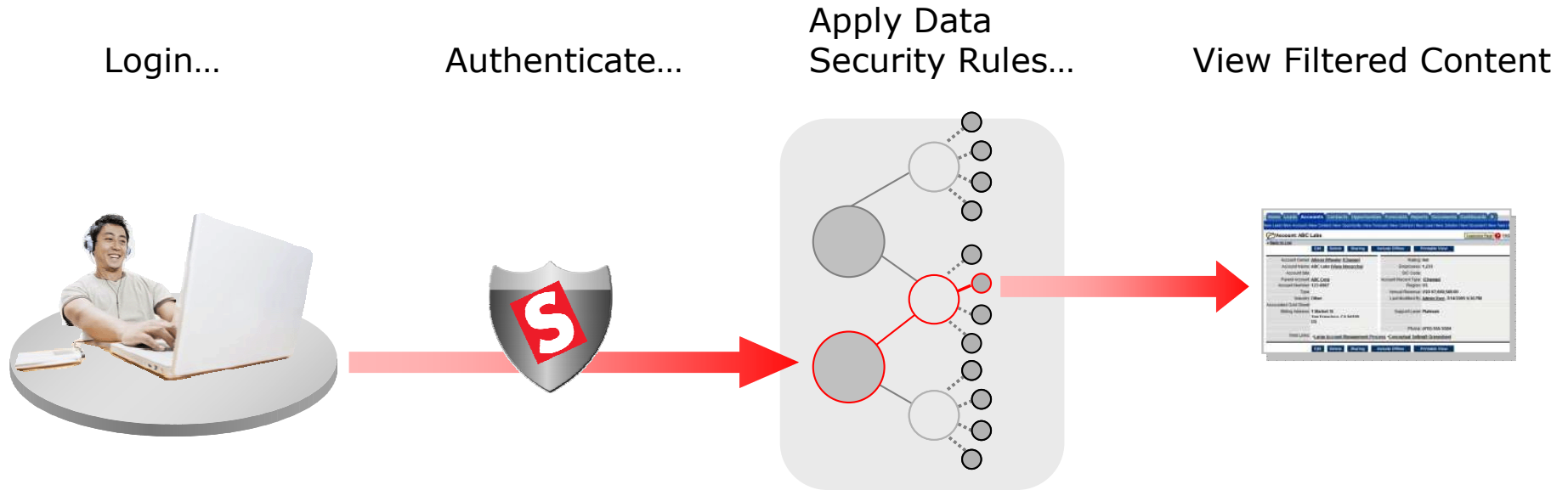
Intellectual Property is
- Owned by customer
- Sharable at discretion

Metadata representations:

Selectively shared data, logic and customizations for 51,800 customers



Multi-Tenant Application Security



- Password security policies
- Rich Sharing Rules
- User Profiles
- SSO/2-factor solutions

Password Policies

Set the password restrictions and login lockout policies for all users.

Password Policies	
User passwords expire in	60 days
Enforce password history	3 passwords remembered
Minimum password length	8 characters
Password complexity requirement	Must mix alpha and numeric
Password question requirement	Cannot contain password
Maximum invalid login attempts	5
Lockout effective period	30 minutes

Save Cancel

Multi-Tenant Application Security

Strong Session Management

Every row in the database contains an ORG_ID - Unique encoded string

Session Tokens – user unique, non-predictable long random value generated for each session combined with a routing “hint” and checksum, base64 encoded

Contains no user-identifiable information

Session Timeout – 15 Mins to 8 Hrs

Lock Sessions to IP – prevent hijacking and replay attacks

SSLv3/TLS used to prevent token capture / session hijacking

Session Logout – Explicitly expire and destroy the session

Set the session security and session expiration timeout for your organization.

Session Timeout

Timeout value

Disable session timeout warning popup.

Session Settings

Lock sessions to the IP address from which they originated.

Require secure connections (https)

Login Page Caching and Autocomplete

Enable caching and autocomplete on login page

Multi-Tenant Application Security

- Don't Expect to Make Water Run Uphill

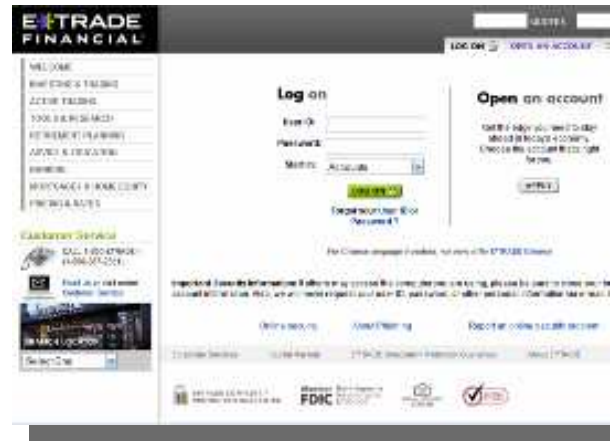
- Users are easier to crack than protocols...
...SO...
- Restrict allowable IP addresses
- Shorten timeout thresholds



- Balance Capability Against Control

- For example, encrypted fields (salesforce.com)
- Only visible to users with “View encrypted data” permission...
...but...
- Encrypted custom fields cannot be unique, an external ID, or have default values
- Encrypted fields are not available for use in filters such as list views, reports, roll-up summary fields
- Encrypted fields cannot be used to define report criteria, but can be included in report results

Governance Leverage: Security as a Service



Facility Security

- 24x365 on site security
- Biometric readers, man traps
- Anonymous exterior
- Silent alarm
- CCTV
- Motion detection
- N+1 infrastructure

Network Security

- Fault tolerant external firewall
- Intrusion detection systems
- Best practices secure systems mgmt
- 3rd party vulnerability assessments

Platform Security

- SSL data encryption
- Optional strict password policies
- SAS 70 Type II & SysTrust Certification
- Security certifications from Fortune 50 financial services customers
- **May 2008: ISO 27001 Certification**

“I am frankly impressed by salesforce.com's commitment to security... **They set the standard** that others should follow...”

– Robert Graham, Errata Security

Data Ownership

- **Data = customer property**
 - No salesforce.com staff accesses your data
 - Segregation of duties ensures only a handful of DBA's can access the data in aggregate to manage the database.
 - Weekly data export service of all data available
 - Return of all your data if you unsubscribe from service
- **Full login history**
 - Login Success/Failure, login IPs, browser/API, date/time
- **Full setup audit trails:**
 - Changes in users, roles, profiles
 - Changes in password strategy
 - Mass transfers and mass deletes
 - Changes in page layouts

More information about security

How can I be assured my data will be kept private?

- Salesforce.com privacy policy and master subscription agreement states that all data is kept private and never used, reviewed, shared or distributed by Salesforce.com

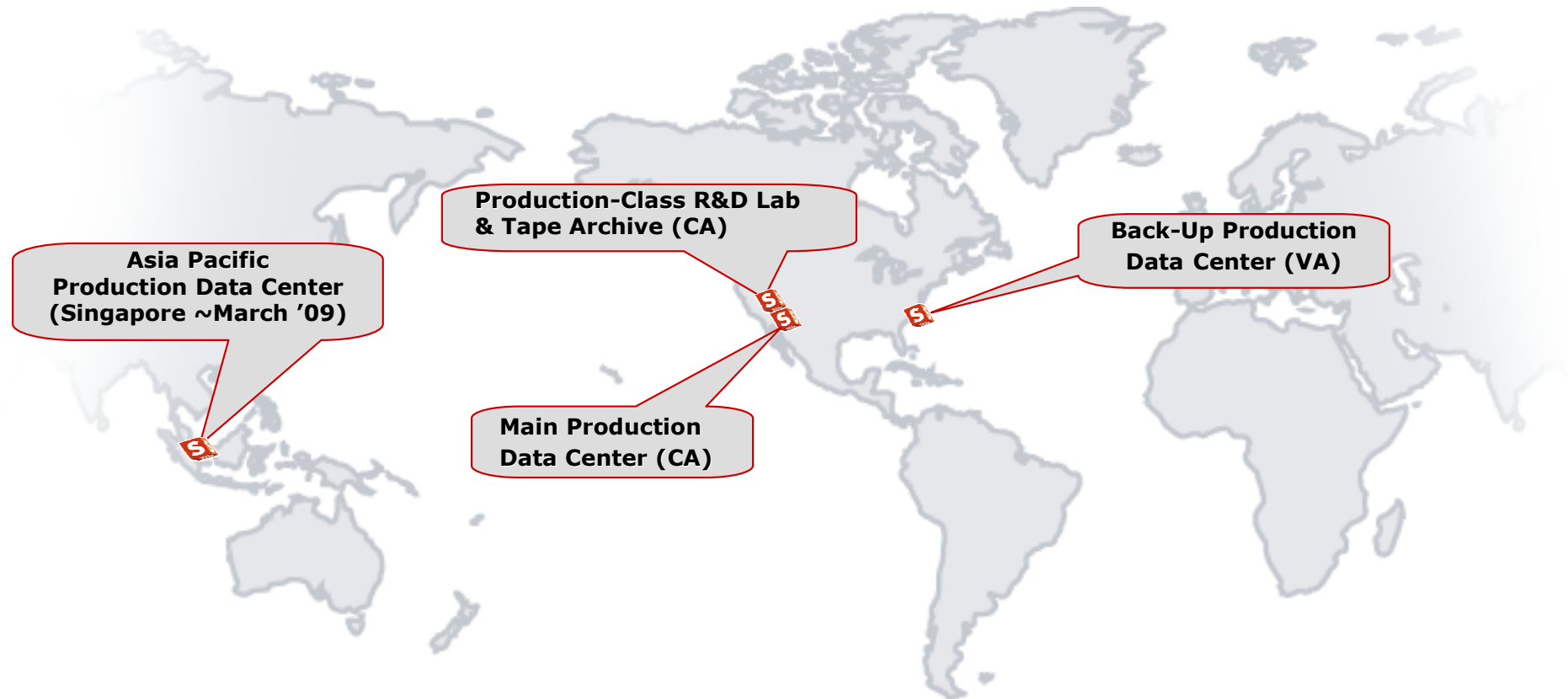
How does Salesforce.com comply with European Data Protection Law?

- Approximately 7,000 customers in Europe already
- Classified as a Data Processor under EU data protection law; the user/customer is classified as a Data Controller.
- Salesforce.com has a privacy statement which complies with European data protection
- Salesforce.com has registered for SAFE HARBOR in the US - a requirement of the European Directive of 2000 on data protection, to enable data to be stored outside of the EU.



Availability: Post-Katrina Criteria

- A 72-hour plan is not enough
- Backup facilities < 1000 miles away are too close



SFDC Built for High Availability

- Multiple Network Carriers
- Redundant Routers at Entry Points
- Fail-over Configured Firewalls
- Redundant & Load Balanced Load Balancers
- Redundant Hubs/Switches at VLANs
- Web, Application, API, Search, Cache, Index, Batch Servers
 - Load Balanced, Fail-over or Clustered
- Data Base Servers
 - Oracle RAC EE; 4 way Clustered Nodes
 - Sized to sustain Peak Load if Node failure
- Storage
 - Multiple paths for reliability
 - 4 interconnects per DBMS Server; alternate paths to separate Storage Directors
 - 2 Storage Directors per Array

Transparency is Crucial to Credibility

Home Security System Status Customer Login

[View Upcoming Maintenance Schedule](#)

Wednesday February 4, 2009 | 10:05 am PST

Service System	APO (Japan)	EU0 (EMEA)	NA0 (SSL)	NA1	NA2	NA3	NA4	NA5	NA6	CS0	CS1	CS2
Status	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

All Systems Operational
No issues reported.

Service Performance History ↑

Date	Number of Transactions	System Status	NA5	NA6	CS0	CS1	CS2
02/03/09	193,378,923		✓	✓	✓	✓	✓
02/02/09	181,359,898		✓	✓	✓	✓	✓
02/01/09	66,218,609		✓	✓	✓	✓	✓
01/31/09	73,877,368		✓	✓	✓	✓	✓
01/30/09	181,964,489		✓	✓	✓	✓	✓
01/29/09	186,841,194		✓	✓	✓	✓	✓
01/28/09	185,440,694		✓	✓	✓	✓	✓
01/27/09	188,125,760	0.277	✓	✓	✓	✓	✓
01/26/09	180,953,278	0.283	✓	✓	✓	✓	✓

Incident Report

- Performance Degradation

Time: 1/26/09 1:53 pm PST

Detail: NA2 performance degradation (application response times)

Root cause: On 1/26/2009 starting 21:53 UTC, the Salesforce.com technology team became aware of a performance degradation affecting the NA2 instance. The problem was isolated to a database system and was resolved by 1/26/2009 22:03 UTC. Throughout the duration of the incident, customers on the NA2 instance may have

Four Major Myths About SaaS and PaaS

- “SaaS creates silos and invites rogue business processes”
 - SaaS often **integrates better** than conventional IT
 - Service models enable **more governable, more auditable** workflow
 - “SaaS is a low-cost, low-function model for SMBs”
 - the **world’s leading companies** are salesforce.com customers
 - SaaS customers get the best for a **predictable price** with **solid ROI**
 - “A ‘platform as a service’ is just an extensibility toolkit for SaaS apps”
 - PaaS enables **rationalization** (consolidation) of current app portfolios
 - PaaS should be **a top-tier option** for building *any* new application
- and
- “PaaS represents increased risk”
 - **Cloud security is proven** and accepted as enterprise-grade

CEO Needs

Innovative
Governable
Affordable

CIO Mandates

Productive
Reliable
Secure

Enterprise Cloud Computing:
Platform as a Service

Thank you

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