



JAGGAER

Security

Your data is priceless. Protect your data, with JAGGAER.

jaggaer.com

High Investment Security



Broad customer base

- More than 300 customers
- Long term contract

Stable employee situation

- Low employee fluctuation
- Management team is shareholder (< 10%)

Private investors

- Consider JAGGAER as long term investment
- Goal: increase company value

Strong SAP partnership

- Integration into SAP information channel
- Cooperation with SAP in different development areas

Fast product development

- Customer determine roadmap (development partnerships)
- Maintenance of SAP interfaces (new SAP releases)

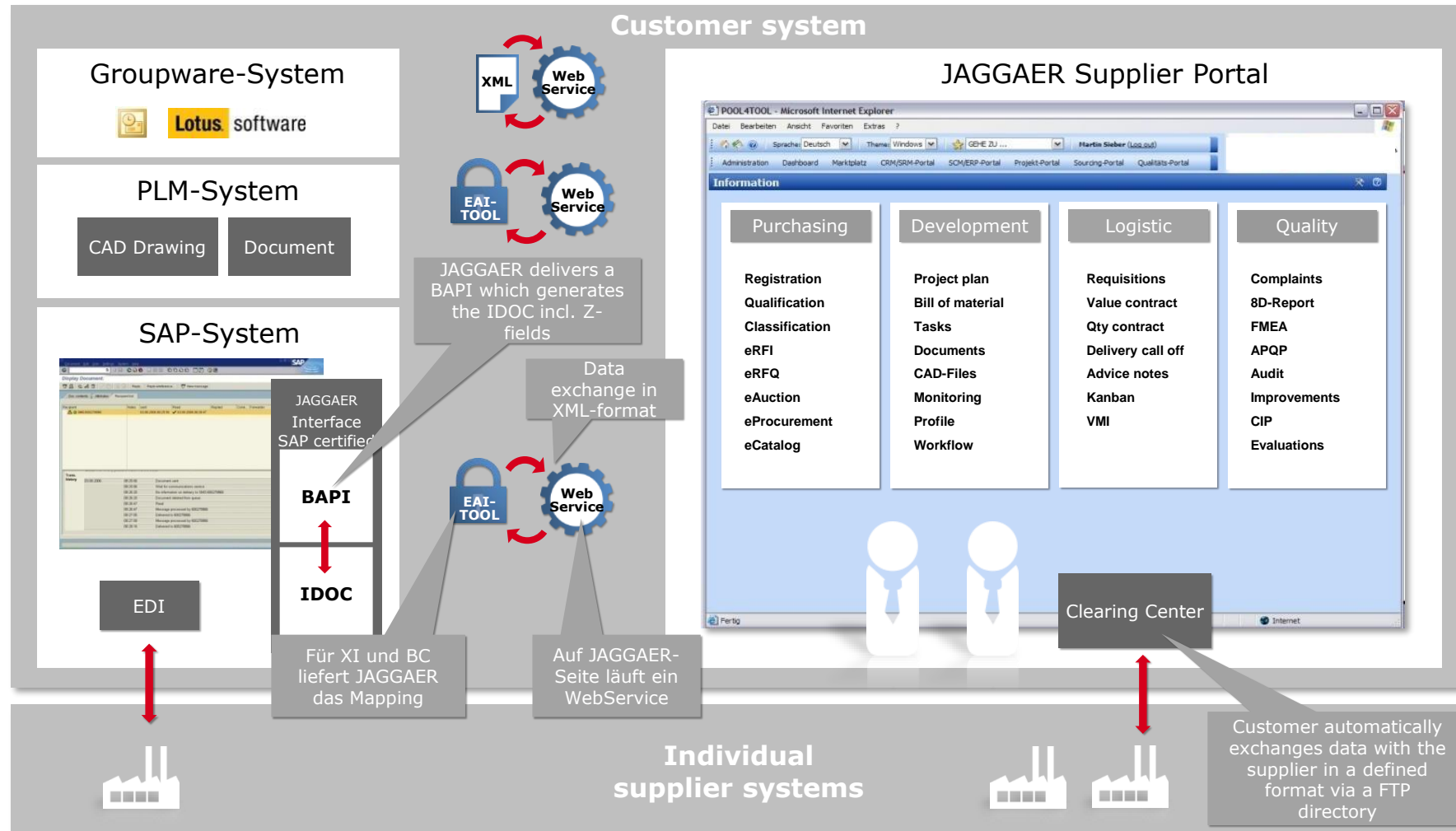
Long term collaboration

- Goal of JAGGAER: build up a long-range partnership
- Focus: sustainable process optimization/enhancement

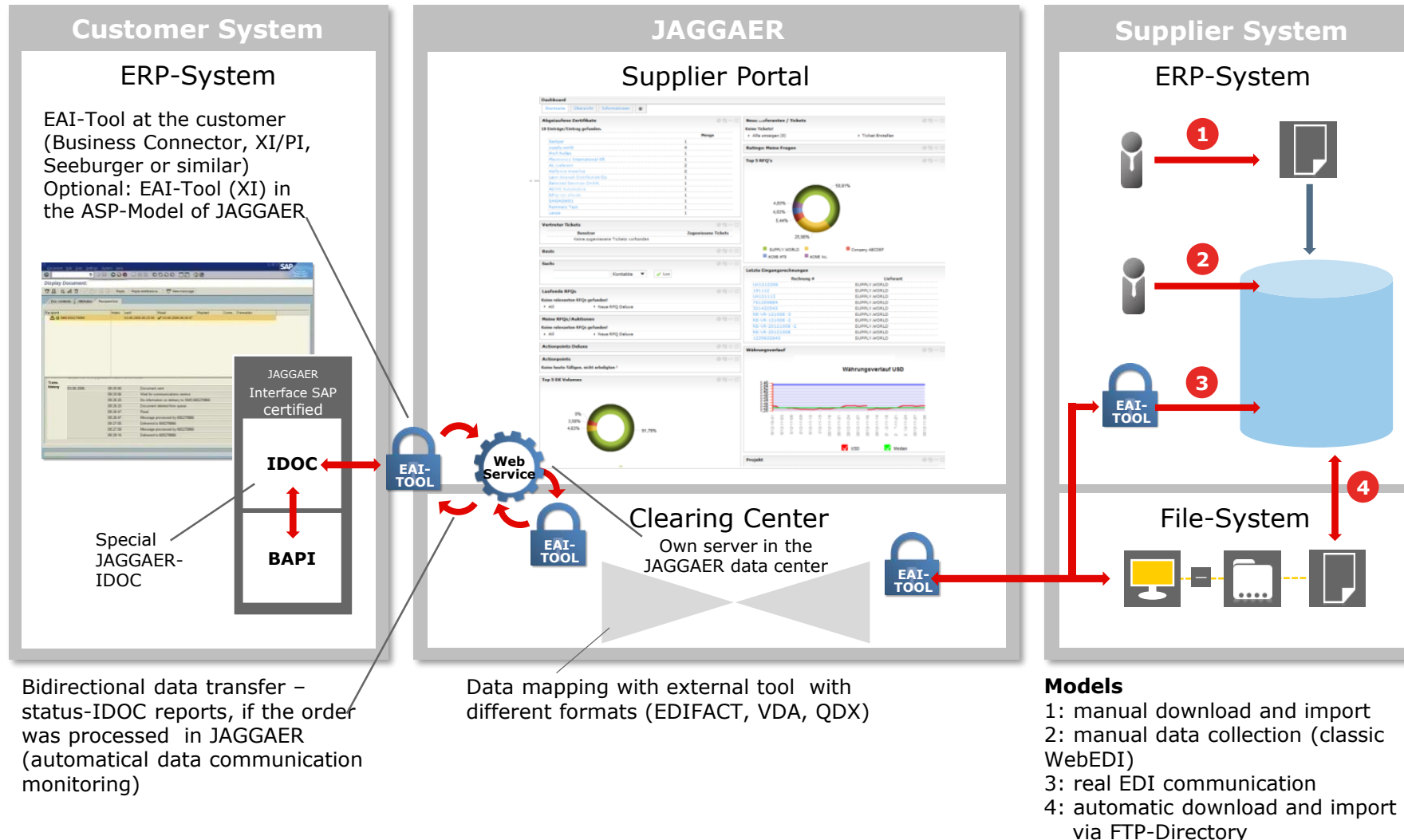
SAP Key-Facts

- SAP partner contract and interface certification
- Own SAP Competence Center
- 6 employees with long-time SAP Know-How
- Experience in ABAP development and SAP customizing
- Special Know-How in XI/PI, workflow and SRM
- More than 50 SAP interfaces (BAPI) based on IDOCs
- Own Add-ons:
 - SAP Enterprise Process Monitor for JAGGAER
 - POOL4TOOL Enterprise Service Repository for SAP
- Own SAP development system
- Own SAP name space /Jaggaer/
- Own SAP demo and test system (IDES)
- Own exchange infrastructure (XI), which we offer as SaaS solution
- Project realization as turn-key solution
- Maintenance of all interfaces (starting with release 4.7 for customers with license agreement)
- Specialized in customer specific requirements (e.g. transfer of Z-fields)

SAP-Integration



SAP-Integration



Software Security Mechanisms



Standard:

- Each access is logged automatically (account name, date, time and IP address)
- Applets with server signature
- HTTPS only with 256 bit encryption

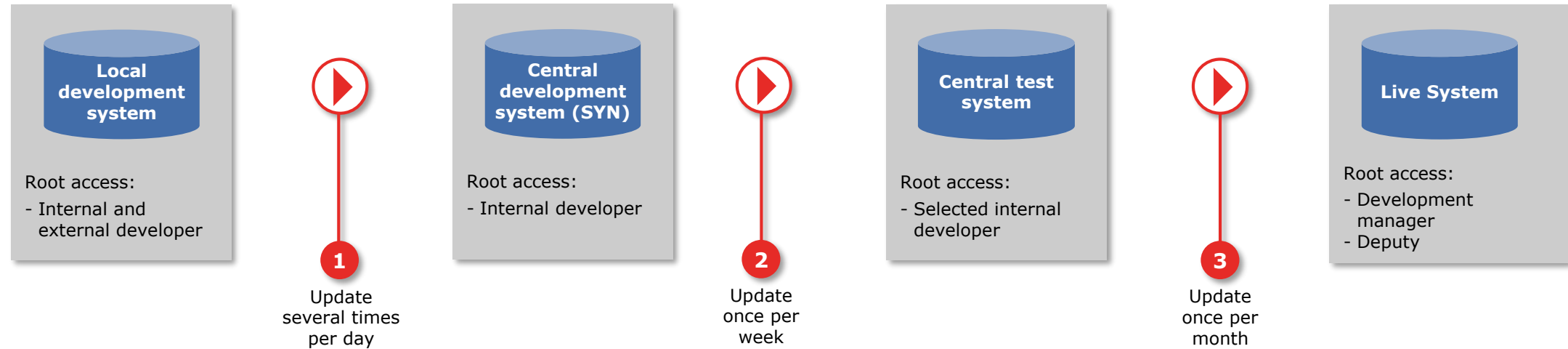
Optional:

- Password reset enforcement
- Customizable auto-log out
- Automatic email after each login
- Access only via fixed IP address

Premium-Security:

- High security access via dynamic password creation – send out via SMS (SMS-TAN):
 - Valid only for one session
 - TAN must be used within 5 minutes

Software Development



Access rights

Only head of development and substitute have access to live system and live data

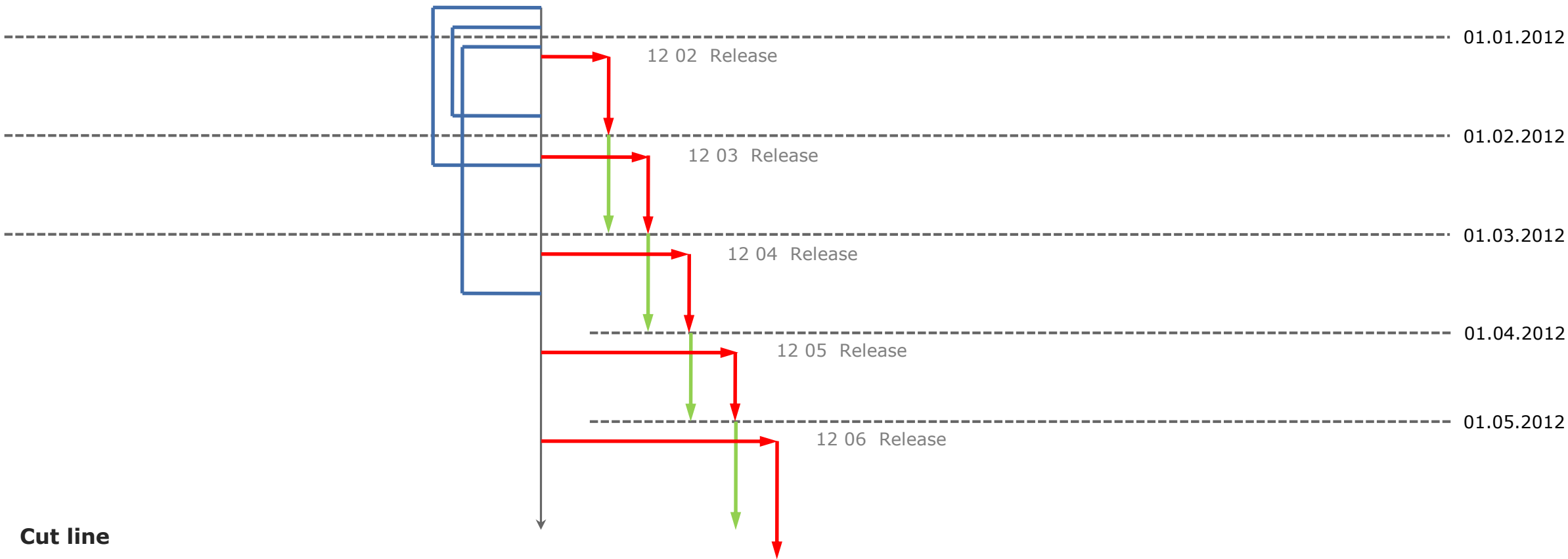
Test environment

New developments go through a multi level test process in different browsers and with documented system tests

Documentation

All developments are logged and documented in JAGGAER via SVN (Sub Version) – stage of all developments (complete history) is always available

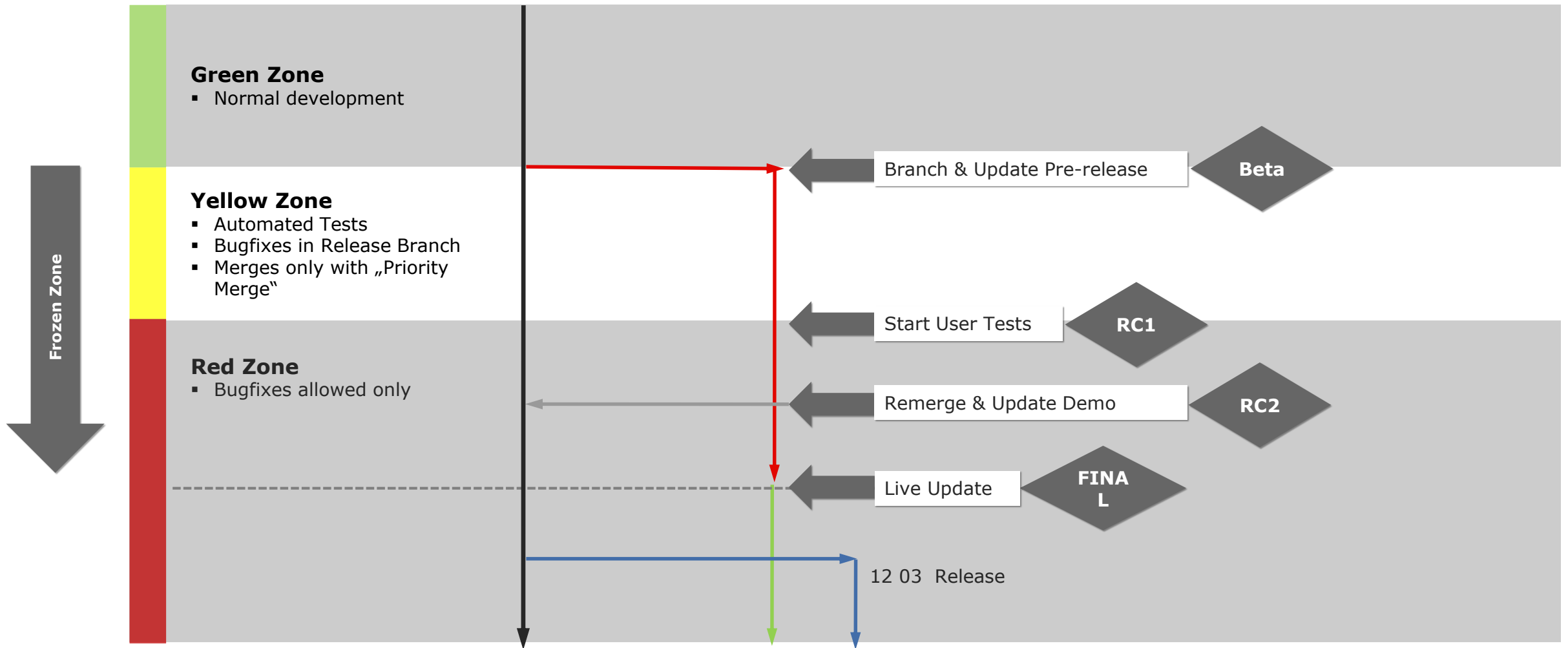
Release-Strategy



Cut line

- Blue: Feature Branch (normal development)
- Red: Pre-release and/or Demo
- Green: Live

Release-Strategy in Detail (1)



Release Strategy in Detail (2)

Jul	Aug	Sep	Oct	Nov	Dec
1 Wed	1 Sat	1 Tue	1 Thu	1 Sun	1 Tue
2 Thu	2 Sun	2 Wed	2 Fri	2 Mon	2 Wed
3 Fri	3 Mon	3 Thu	3 Sat	3 Tue	3 Thu
4 Sat	4 Tue	4 Fri	4 Sun	4 Wed	4 Fri
5 Sun	5 Wed	5 Sat	5 Mon	5 Thu	5 Sat
6 Mon	6 Thu	6 Sun	6 Tue	6 Fri	6 Sun
7 Tue	7 Fri	7 Mon	7 Wed	7 Sat	7 Mon
8 Wed	8 Sat	8 Tue	8 Thu	8 Sun	8 Tue
9 Thu	9 Sun	9 Wed	9 Fri	9 Mon	9 Wed
10 Fri	10 Mon	10 Thu	10 Sat	10 Tue	10 Thu
11 Sat	11 Tue	11 Fri	11 Sun	11 Wed	11 Fri
12 Sun	12 Wed	12 Sat	12 Mon	12 Thu	12 Sat
13 Mon	13 Thu	13 Sun	13 Tue	13 Fri	13 Sun
14 Tue	14 Fri	14 Mon	14 Wed	14 Sat	14 Mon
15 Wed	15 Sat	15 Tue	15 Thu	15 Sun	15 Tue
16 Thu	16 Sun	16 Wed	16 Fri	16 Mon	16 Wed
17 Fri	17 Mon	17 Thu	17 Sat	17 Tue	17 Thu
18 Sat	18 Tue	18 Fri	18 Sun	18 Wed	18 Fri
19 Sun	19 Wed	19 Sat	19 Mon	19 Thu	19 Sat
20 Mon	20 Thu	20 Sun	20 Tue	20 Fri	20 Sun
21 Tue	21 Fri	21 Mon	21 Wed	21 Sat	21 Mon
22 Wed	22 Sat	22 Tue	22 Thu	22 Sun	22 Tue
23 Thu	23 Sun	23 Wed	23 Fri	23 Mon	23 Wed
24 Fri	24 Mon	24 Thu	24 Sat	24 Tue	24 Thu
25 Sat	25 Tue	25 Fri	25 Sun	25 Wed	25 Fri
26 Sun	26 Wed	26 Sat	26 Mon	26 Thu	26 Sat
27 Mon	27 Thu	27 Sun	27 Tue	27 Fri	27 Sun
28 Tue	28 Fri	28 Mon	28 Wed	28 Sat	28 Mon
29 Wed	29 Sat	29 Tue	29 Thu	29 Sun	29 Tue
30 Thu	30 Sun	30 Wed	30 Fri	30 Mon	30 Wed
31 Fri	31 Mon		31 Sat		31 Thu

Support/Help-Desk



Standard Support:

- The base of good collaboration
- First contact for purchasers and key users (2nd level support)
- Immediate assistance using the JAGGAER Direct application (according to SLAs)
- High level of transparency – one support ticket – full access to all support tickets
- Relief of operating departments through high product knowledge
- Numerous additional services in accordance to specific requirements (certification requests, supplier trainings...)
- Invoice per quarter based on efforts per 15 minutes

Premium Support:

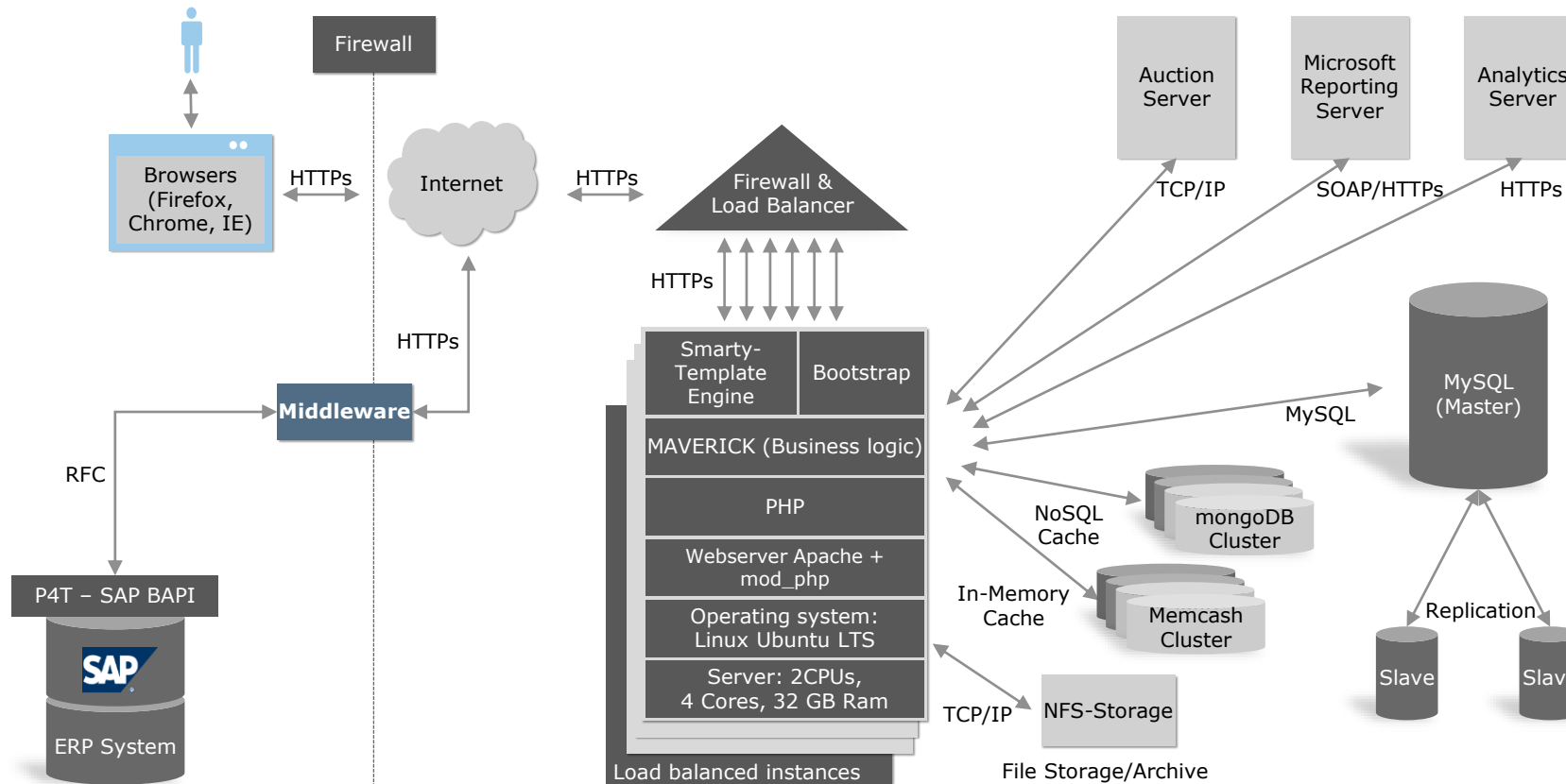
- Extensive support and fast help – Includes all Standard Support services plus...
- Application support for suppliers including trainings where required (1st level support)
- Reduced SLAs (see below)
- Multilingual support by native speakers in 14 languages for better communication with users and suppliers
- To-the-minute effort tracking and predictability of costs because of fixed contingents and fair use principle (flat rate)

Locations



- **JAGGAER Direct Support America**
 - Number: +1 248 4341268
 - Availability: 9:00-17:00 (Eastern Standard Time / UTC-5)
 - Size: 2
 - Languages:   
- **JAGGAER Direct Support Europe**
 - Number: +43 1 8041050
 - Availability: 8:00-18:00 (Central Europe Time / UTC+1)
 - Size: 10
 - Languages:         
- **JAGGAER Direct Support Middle East**
 - Number: +971 4 2973201
 - Availability: 9:00-17:00 (UTC+4)
 - Size: 1
 - Languages:  
- **JAGGAER Direct Support Asia & Pacific**
 - Number: +65 65628060
 - Availability: 9:00-17:00 (China Standard Time / UTC+8)
 - Size: 2
 - Languages:    

JAGGAER System Architecture 1



JAGGAER System-Architektur 2



Key-Facts:

- State of the art Web application concept
- NoSQL technology used (mongoDB)
- In-Memory technology used (memcache)
- Easy to scale out / load balance / geo balance
- Fault tolerant system setup (multiple sites located in TIER 3 datacenters)
- Redundant Internet backbone (powered by COLT)
- ISO27001 certified architecture, backup and disaster recovery processes for SAAS infrastructure
- JAGGAER is flexible enough to run in a single virtual machine container (for on premise customers)

Datacenter Security



- All datacentres have active ISO27001 certification
- All datacentres have been audited internally before migration and provide
 - CCTV coverage in all DC rooms and round the premises
 - Two factor authentication access control system (RFID, Biometric)
 - Intrusion detection system
 - 24/7 presence by either porter or security
 - Automatic smoke/fire detection
 - Temperature & humidity observation
 - JAGGAER exclusive, locked server racks
 - Separation of DC rooms from building's outer shell walls
 - F90 standard protection class walls & doors
- JAGGAER and its datacentres have been audited by our customers
 - Multiple customers have audited our SaaS solution according to §11 BDSG

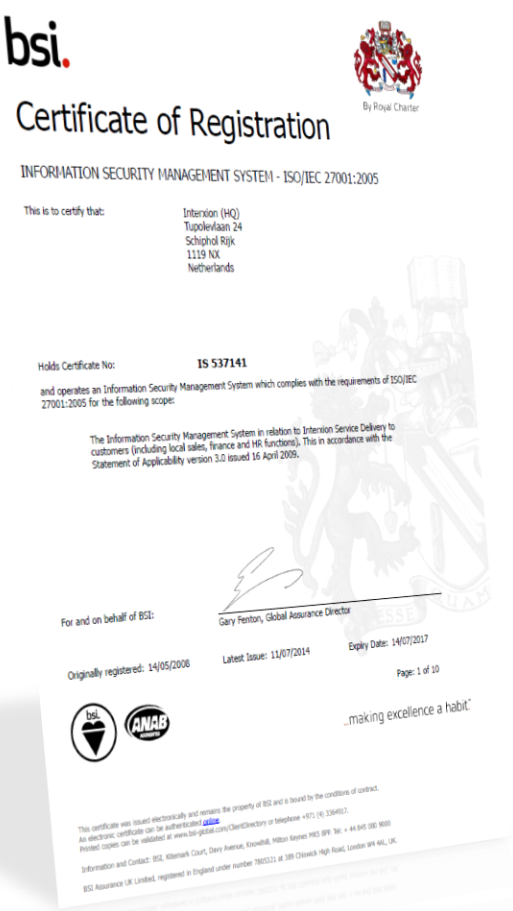
CERTIFICATES



ISO27001 | JAGGAER DC1 | e-shelter Vienna



9-May-18



ISO27001 | JAGGAER DC1 | e-shelter Vienna



Datacenter Redundancy



The JAGGAER SaaS infrastructure is a true multi-site cluster. This setup allows multiple devices to fail simultaneously without noticeable impact of availability.

Infrastructure

- Multiple sites located in TIER 3 datacentres
- Redundant cooling and power
- Redundant USV and backup generators

Server

- Hardware RAID 1/5/6
- Redundant power supplies (connected to A+B feed)
- Redundant networking (connected to different switches)

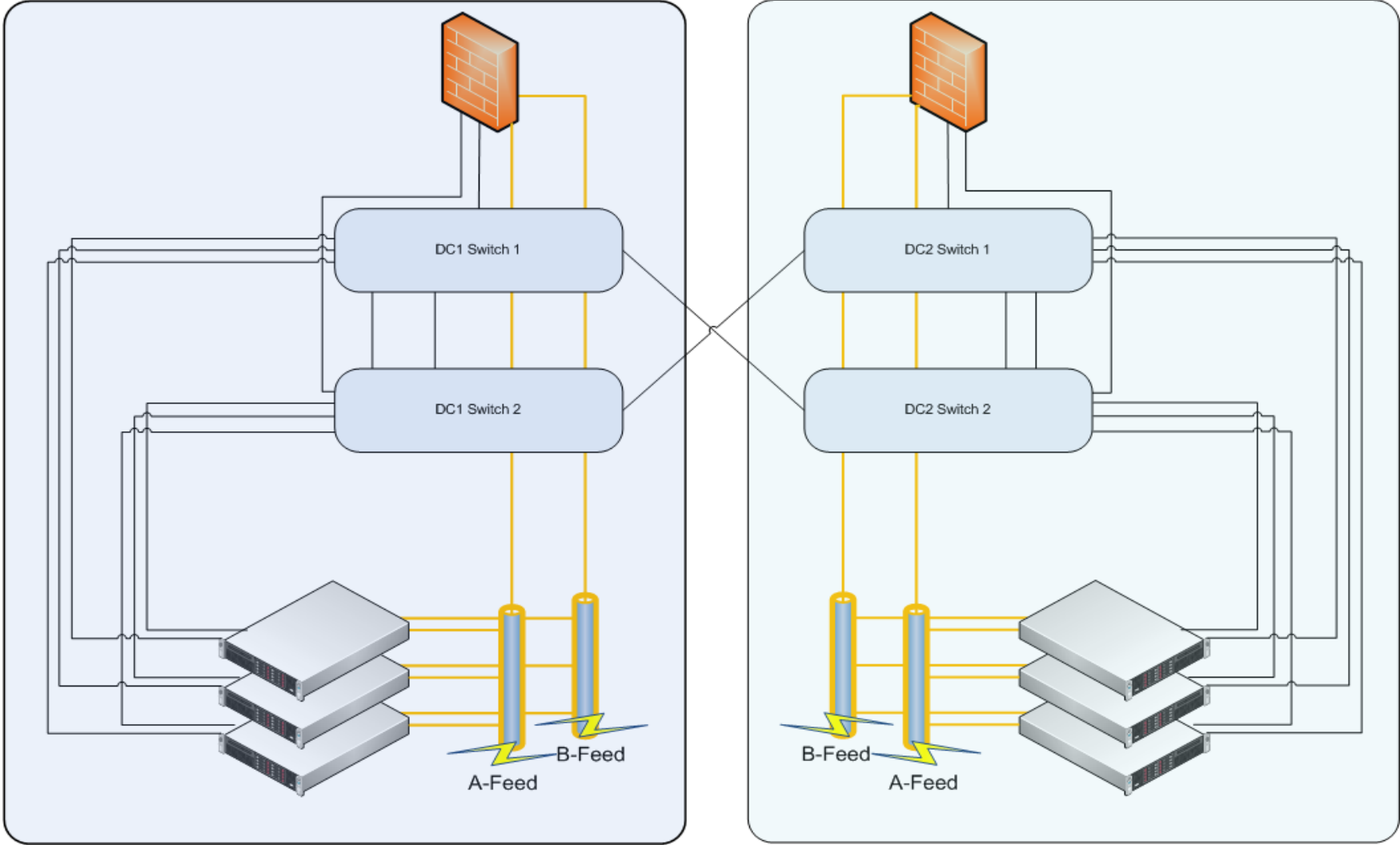
Storage

- HP StoreVirtual multi-site storage clusters

Network

- Redundant network components on each site
- Sites are connected via redundant dark-fibre ethernet (2x1Gbit)
- Redundant, automatic failover internet uplink

Data Center Redundancy



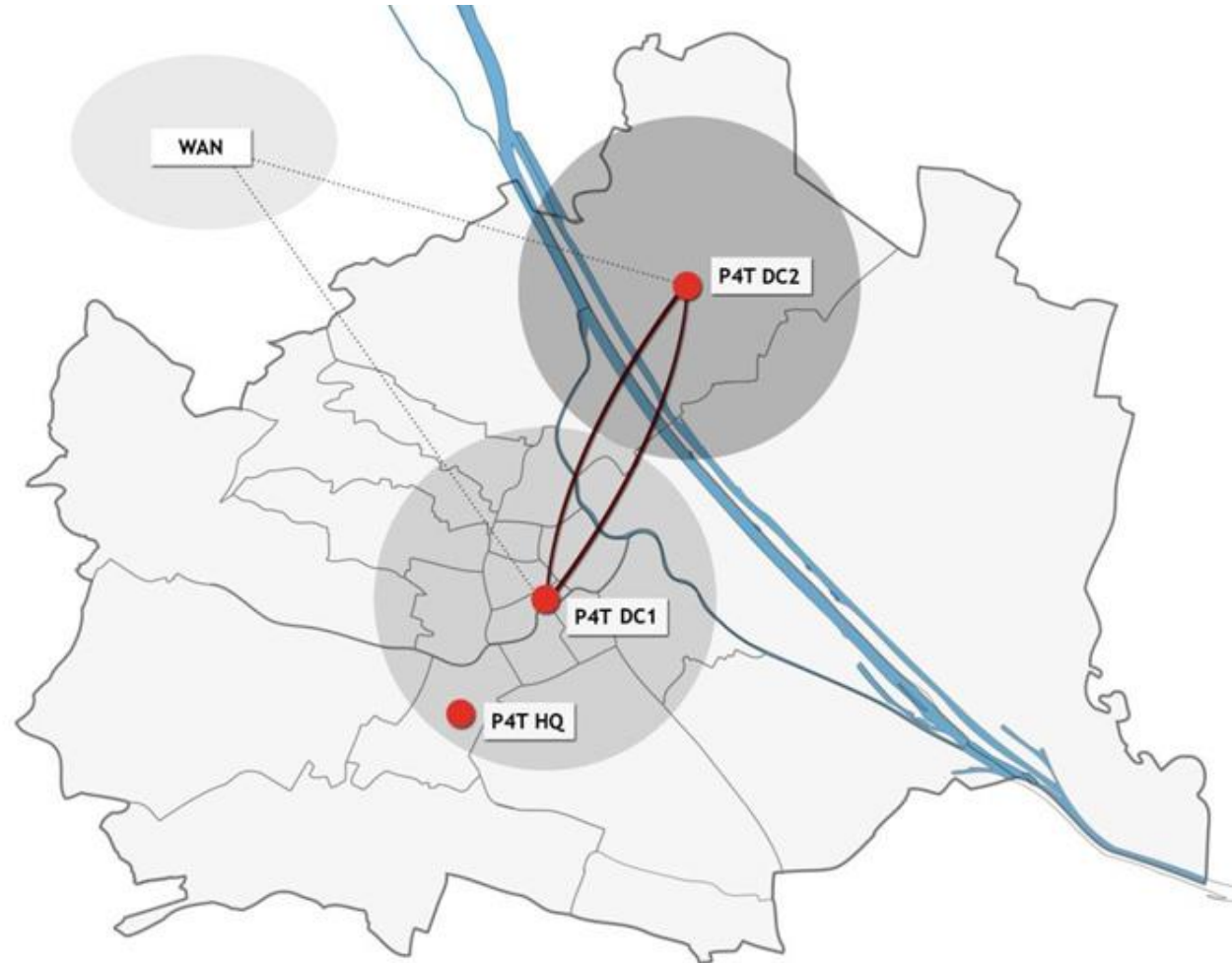
Disaster Recovery



Even in case of a complete site outage, the JAGGAER SaaS infrastructure designed to remain operational.

- Distance between site A & B 10km
 - Twice the distance recommended for disaster independent sites
- Automatic WAN failover to remaining site
- All sites within 30 minutes driving distance from JAGGAER HQ
 - Primary site 5 minutes away from JAGGAER HQ
 - JAGGAER technicians can react instantly
- Service contracts with our hardware suppliers
 - 4 hour on-site support for quick recovery of affected site

Disaster Recovery



Application Redundancy



In case of hardware failure JAGGAER continues to work.

- Application server failure
 - Load is spread on remaining servers in cluster
- Master database server failure
 - One of the replication slave DB Servers gets promoted to Master
- Slave database server failure
 - Load is spread on remaining slave DB Servers
- Storage node failure (on site A)
 - Storage links are being transferred to storage node from site B
- VM host failure (on site A)
 - Vital VMs are being transferred and restarted on VM host on site B
- Firewall / uplink failure (on site A)
 - Open connections are being transferred to firewall on site B
 - Network is being rerouted to site B via BGP

Backend Security



To keep a system running smoothly, it requires regular maintenance and optimization which by nature is not free of risks. That's why we pay special attention to keep the backend as secure as possible.

- Maintenance occurs exclusively via VPN connections
 - Named users & strong password
 - Separate maintenance network (logically separated from application networks)
- Centralized access server to access different systems
 - Specially hardened and minimalized system
 - Login via named user, password and OTP Token
 - Active response techniques to lock out users/source IPs after failed login attempts
- Regular audits of maintenance log files

Application Security



Backup Strategy



Backups are vital. Therefore we run a multi-layer backup concept.

- Database replication
 - All our databases are continuously replicated to slave DB servers on all sites
- File storage replication
 - File storage is being replicated continuously to all sites
- Daily on-site database backups
 - Every night we create a complete, consistent snapshot of all databases
 - The last 14 snapshots are being stored independently on all sites for fast and easy recovery in case of data loss
- Weekly off-site database & file storage backups
 - Every weekend all relevant data is being copied to our Vienna headquarters
 - Data transfer is encrypted
 - Backup data storage is encrypted

Technologies

APACHE
HTTP SERVER



Webserver (dynamic content) | Apache 2.2 Server OS | Ubuntu 12.04 LTS x64



Key/Value Store | memcached 1.4



Application | PHP 5.3.10



Webserver (static content) | nginx 1.1.9



Monitoring Appliance | Zabbix 2.0



Database | MySQL 5.5

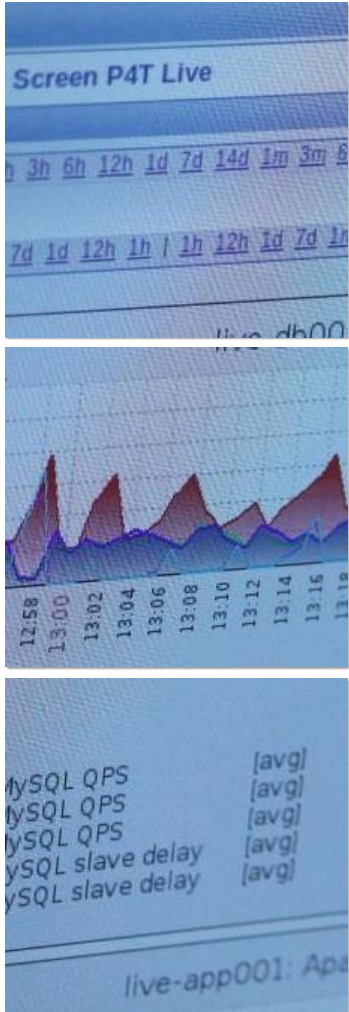


NoSQL DB | mongoDB 2.0



Firewall Appliance | pfSense 2.1

Monitoring Concept



A highly available infrastructure can only be as good as it's monitoring system. That's why we are committed to permanently improve ours.

- The whole infrastructure is monitored in real time. 24/7. 365 days a year.
- Notification occurs according to severity on-screen, via email and/or SMS
- Server Hardware probes
 - Inlet-, exhaust-, memory-, CPU-, mainboard temperatures, fan speeds,...
 - RAID status, CPU load, disk usage, memory usage, network utilization,...
- Network Hardware probes
 - Bandwidth, interface link status, device temperature, connection quality,...
- Application
 - Webserver hits/second, DB queries/second, incoming- & outgoing transfer queues,...
 - Response times, uptime (SLA), user data growth rate,...

Hardware Impressions



Hardware | HP | ProLiant | Gen 8 | Gen 9



Storage | SAS | RAID6 | multi-site | 60TB total

Hardware Impressions



Redundant switches | redundant power | redundant cooling

Hardware Impression



Redundant switches | redundant power | redundant cooling



Get to know us!

www.jaggaer.com



LET'S GET STARTED!

JAGGAER →