



**JAGGAER**

Security

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

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[jaggaer.com](http://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)

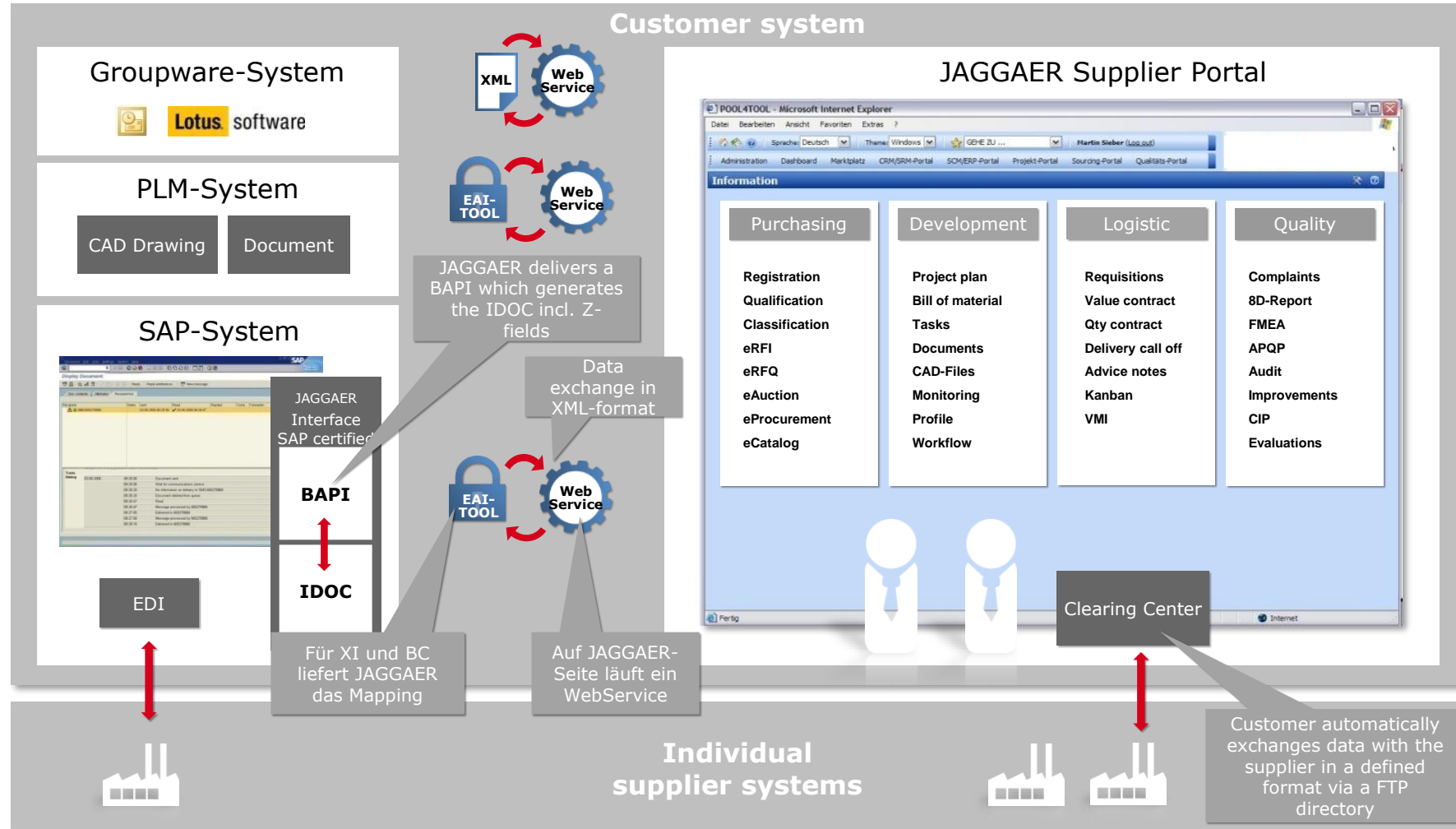
## **Long term collaboration**

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

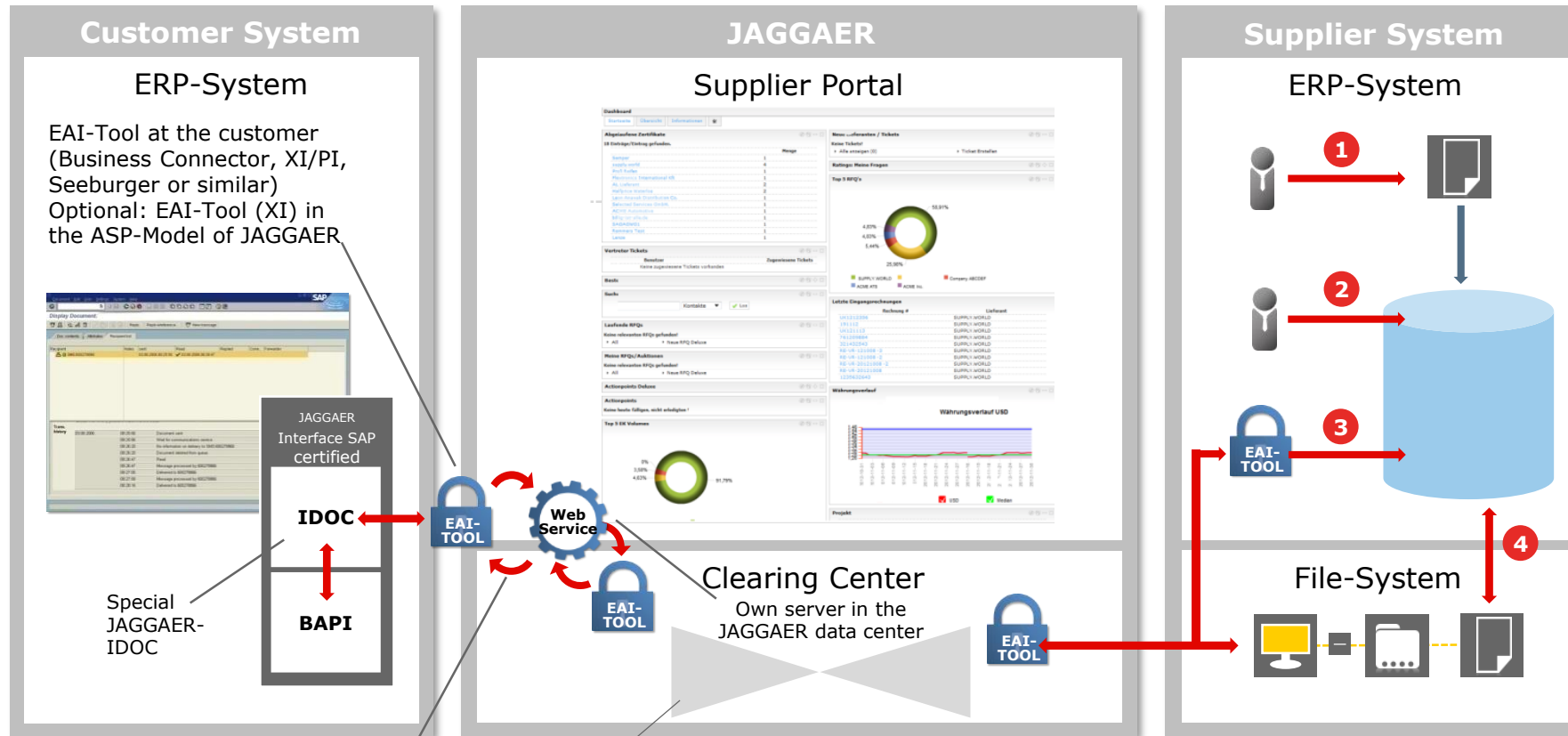
## SAP Key-Facts

- 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



Bidirectional data transfer – status-IDOC reports, if the order was processed in JAGGAER (automatical data communication monitoring)

Data mapping with external tool with different formats (EDIFACT, VDA, QDX)

# 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

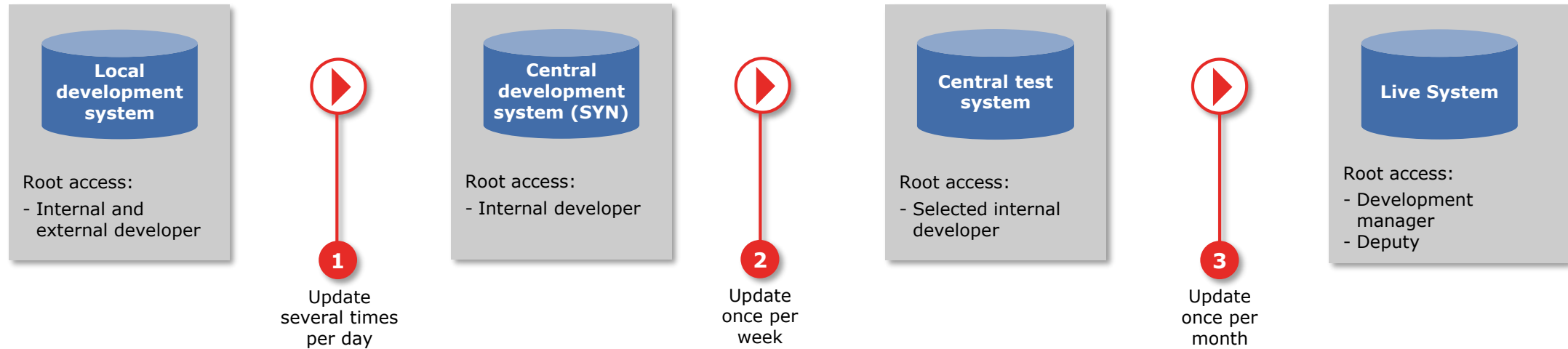
## **Optional:**

- 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

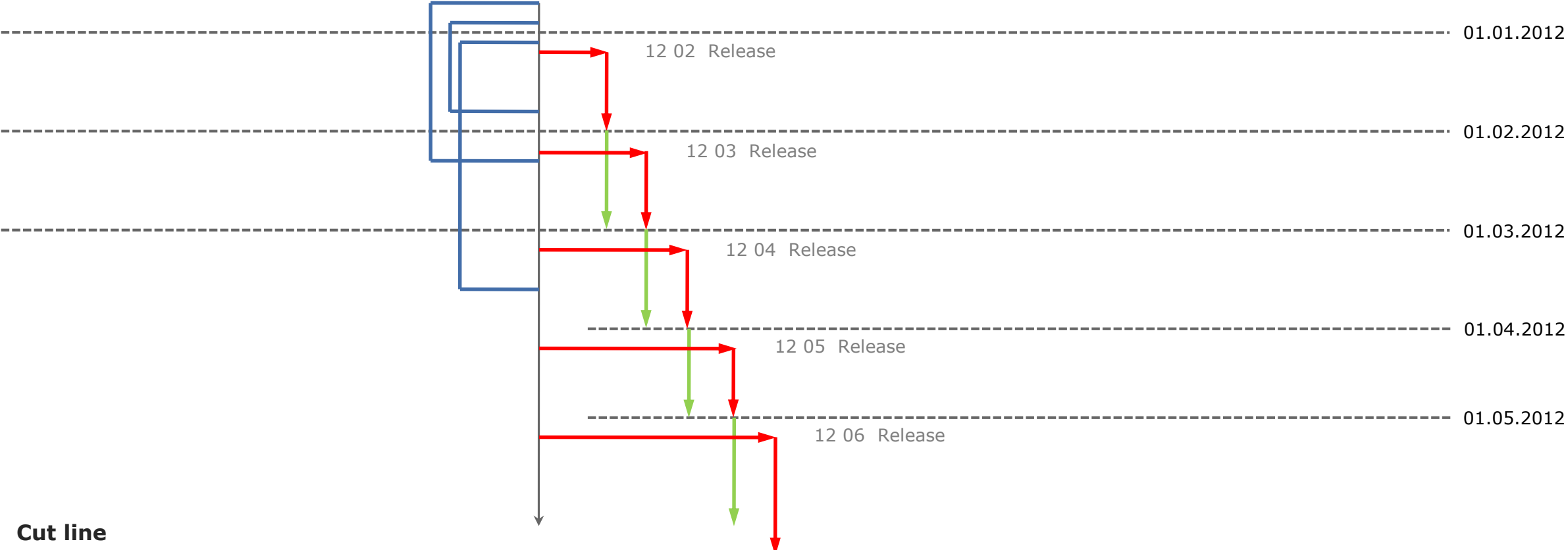
## Test environment

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

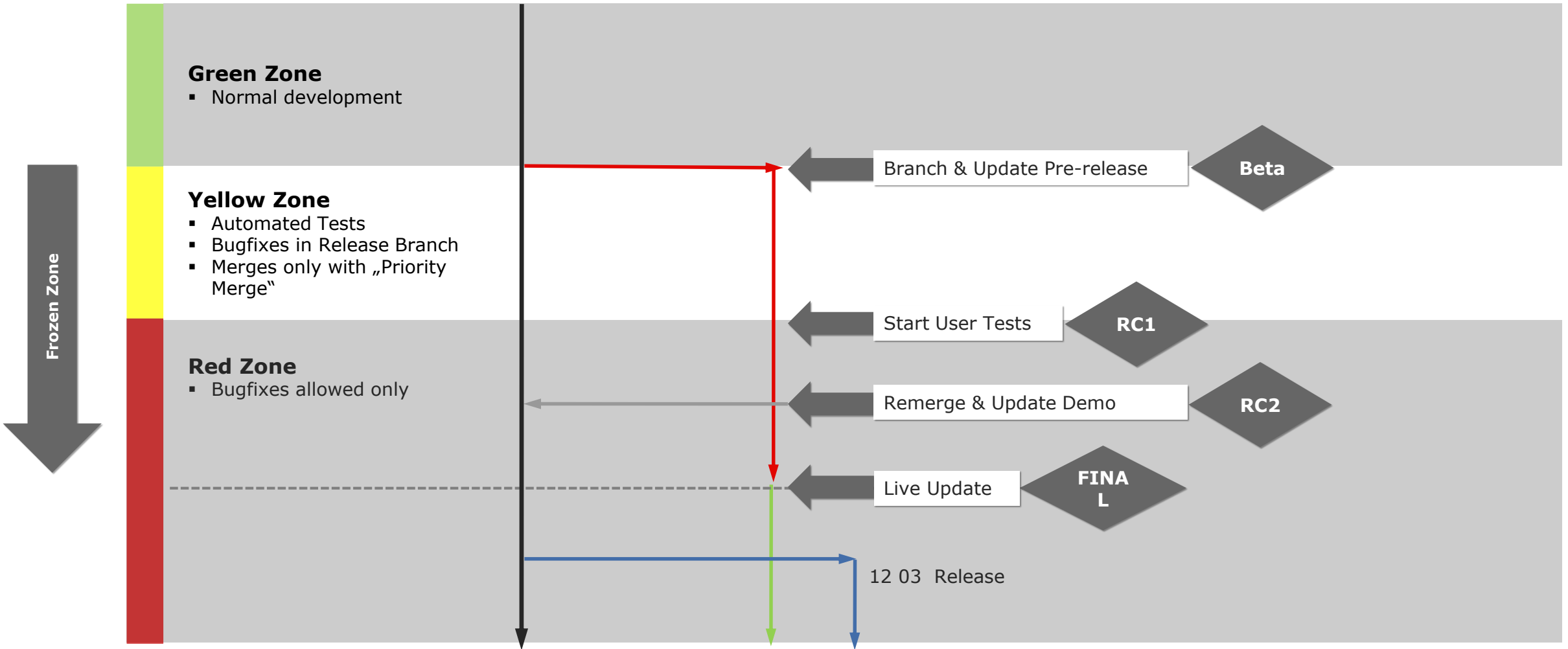


**Cut line**  
Blue: Feature Branch (normal development)  
Red: Pre-release and/or Demo  
Green: Live





# 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
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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:**

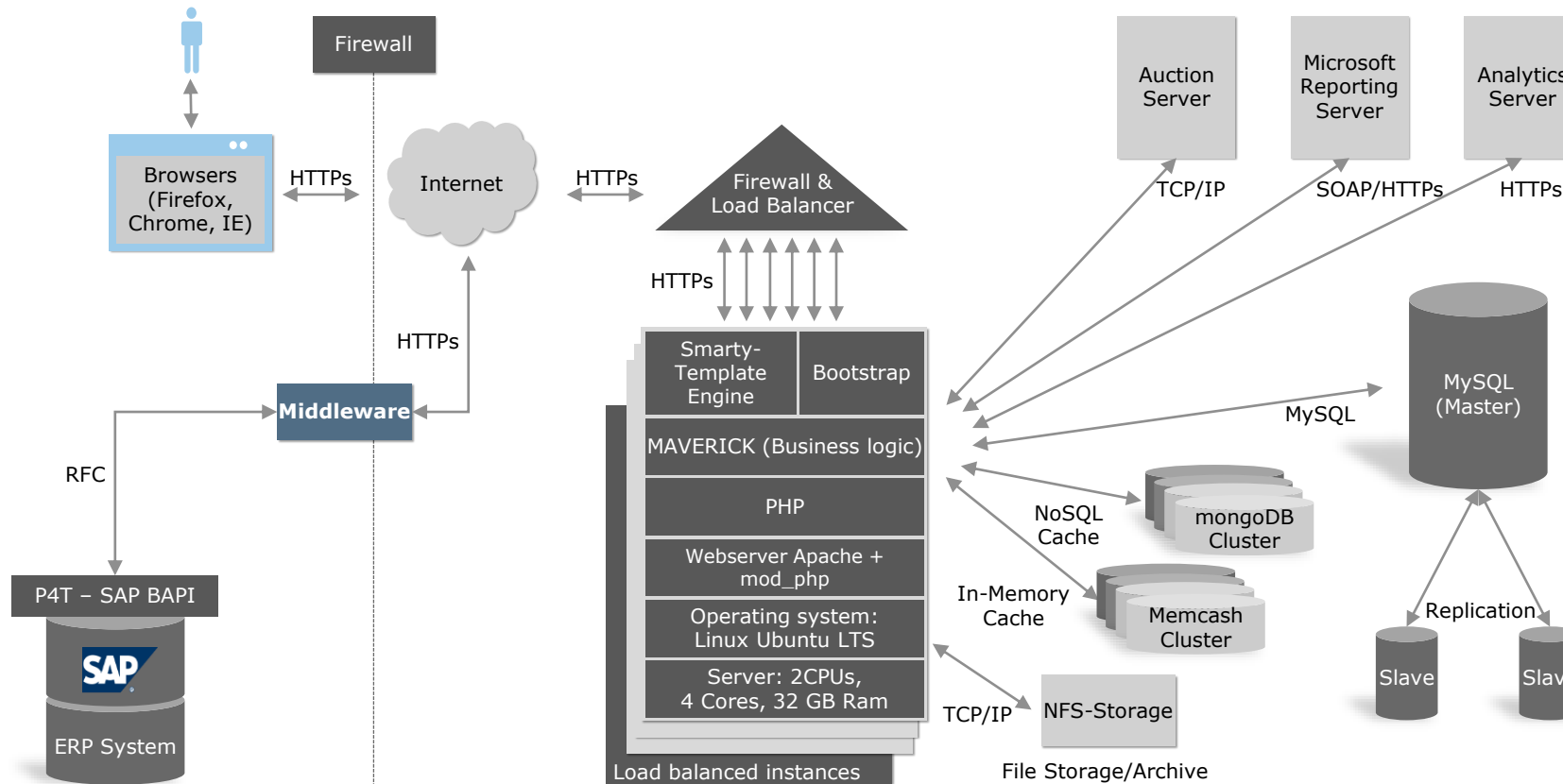
- Extensive support and fast help – Includes all Standard Support services plus...
- Application support for suppliers including trainings where required (1st level support)
- Reduced SLAs (see below)
- Multilingual support by native speakers in 14 languages for better communication with users and suppliers
- 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

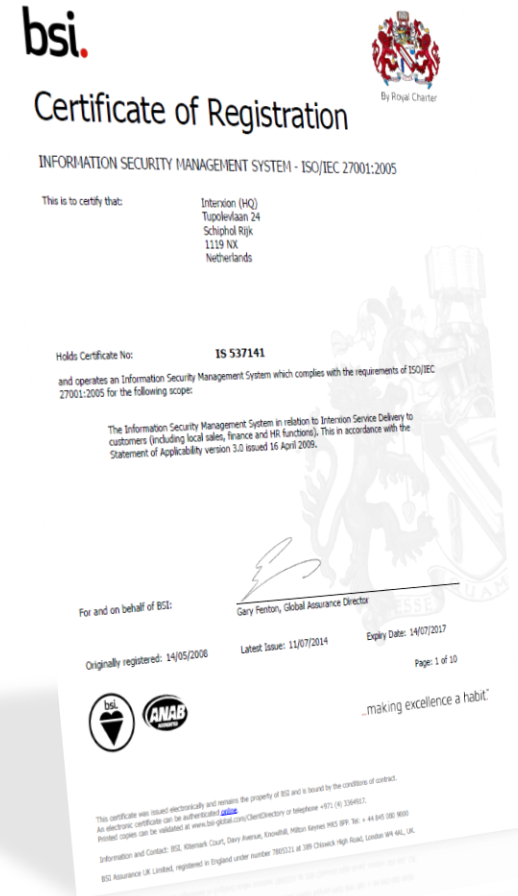


- All datacentres have active ISO27001 certification
- All datacentres have been audited internally before migration and provide
  - CCTV coverage in all DC rooms and round the premises
  - Two factor authentication access control system (RFID, Biometric)
  - Intrusion detection system
  - 24/7 presence 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



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)

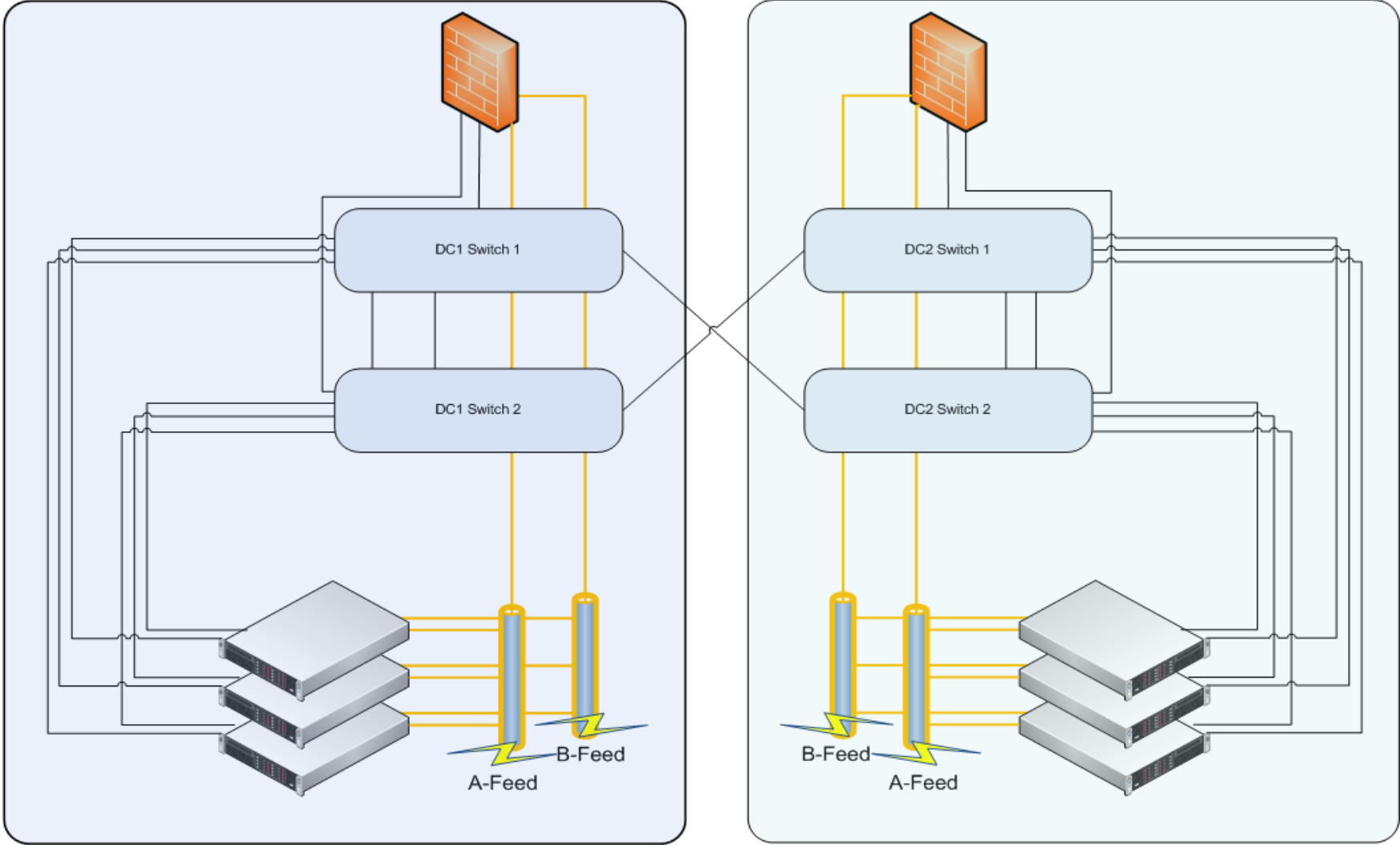
## **Storage**

- 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



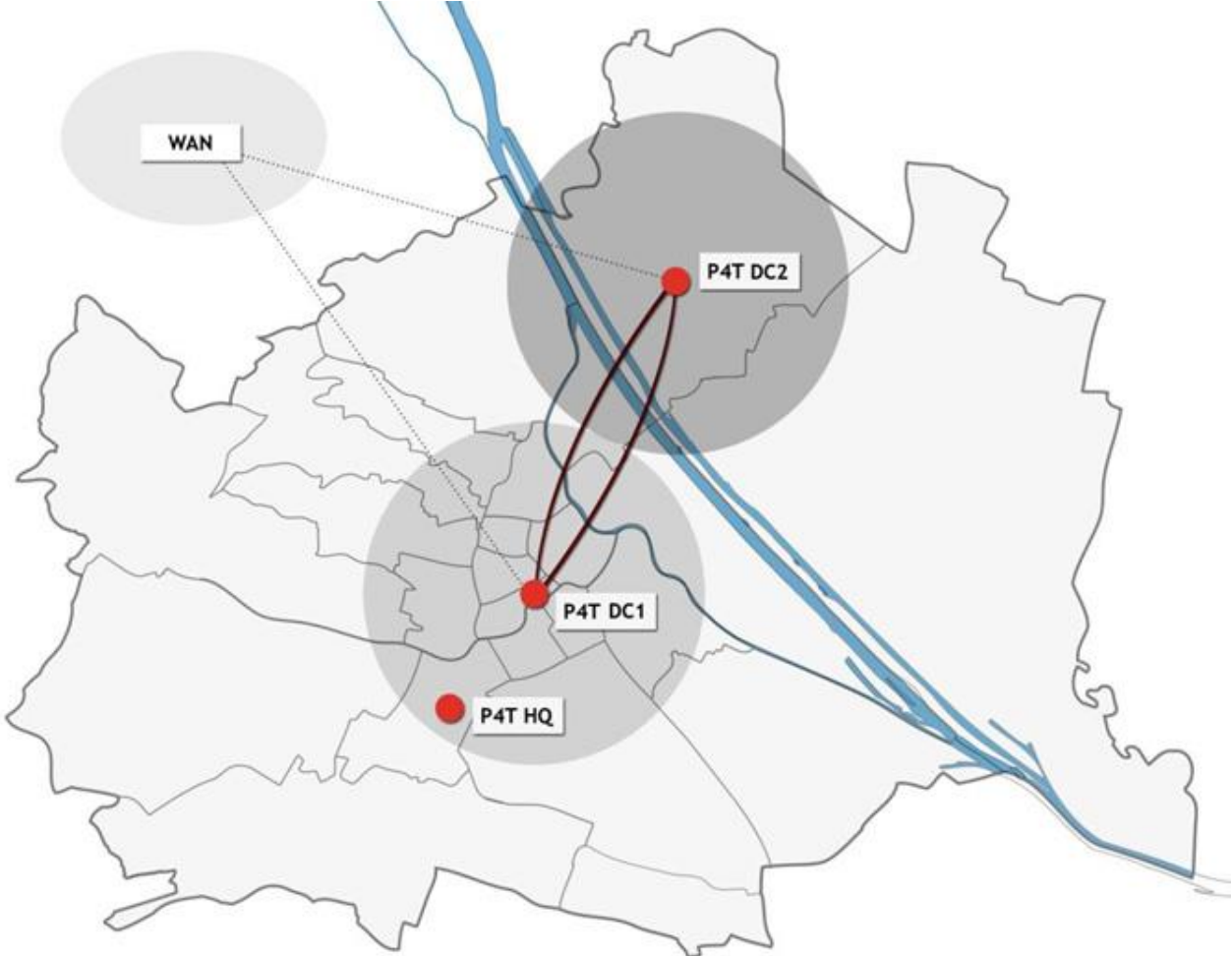
# Disaster Recovery



## **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

NGINX

Webserver (static content) | nginx 1.1.9



Monitoring Appliance | Zabbix 2.0



Database | MySQL 5.5

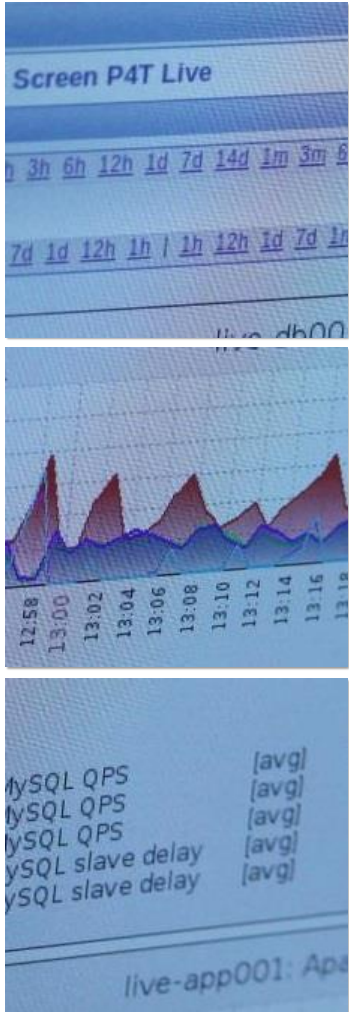


NoSQL DB | mongoDB 2.0



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](http://www.jaggaer.com)





LET'S GET STARTED!

*JAGGAER* →