Ex Libris Cloud and Support Services

Updates and Q&A

Barak Rozenblat | VP Cloud Operations
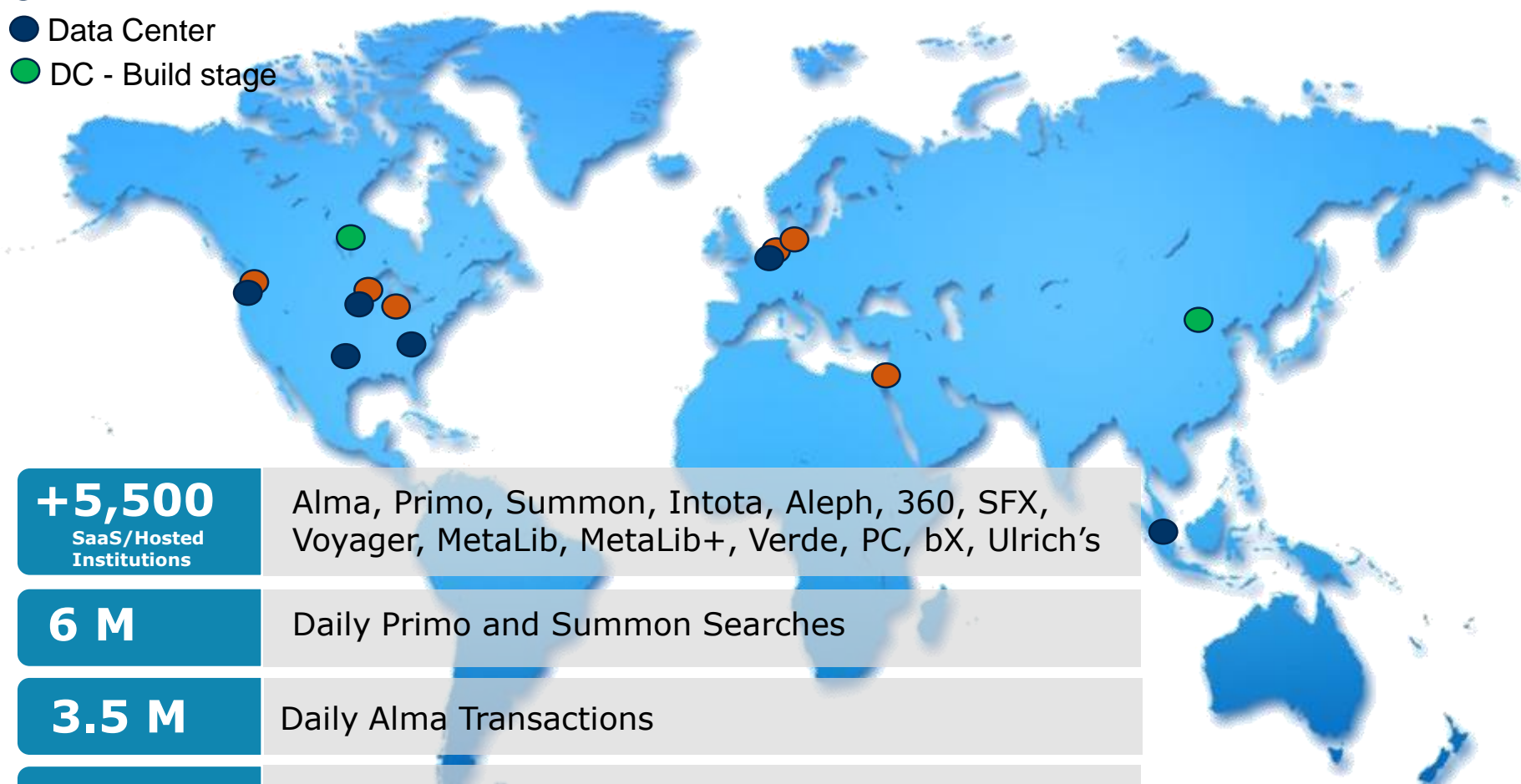
VISION

BE THE INDUSTRY LEADING PROVIDER OF CLOUD SERVICES
FOR LIBRARY AUTOMATION SOLUTIONS

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Cloud in Numbers

- 🟠 Exlibris Office
- 🔵 Data Center
- 🟢 DC - Build stage

+5,500 SaaS/Hosted Institutions	Alma, Primo, Summon, Intota, Aleph, 360, SFX, Voyager, MetaLib, MetaLib+, Verde, PC, bX, Ulrich's
6 M	Daily Primo and Summon Searches
3.5 M	Daily Alma Transactions
70	Cloud services employees
80	Racks in 10 private DCs and 3 AWS locations

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Cloud Services
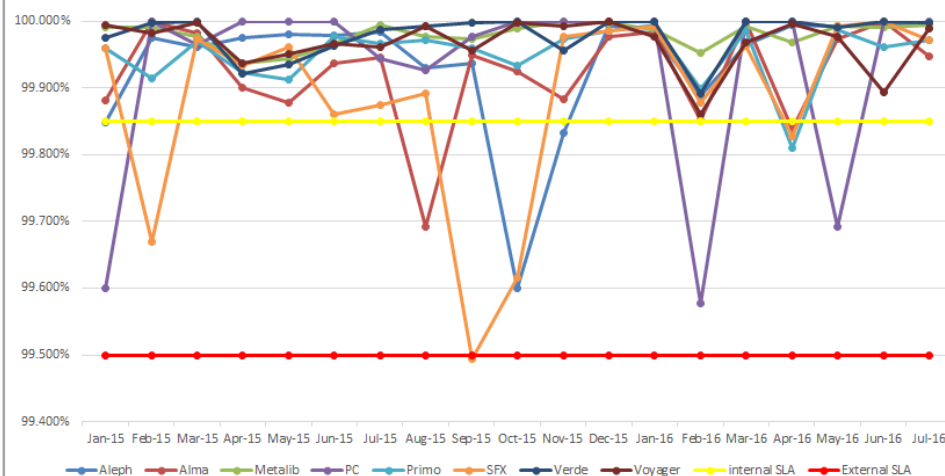
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Cloud Uptime and Downtime Trend

Downtime Trend
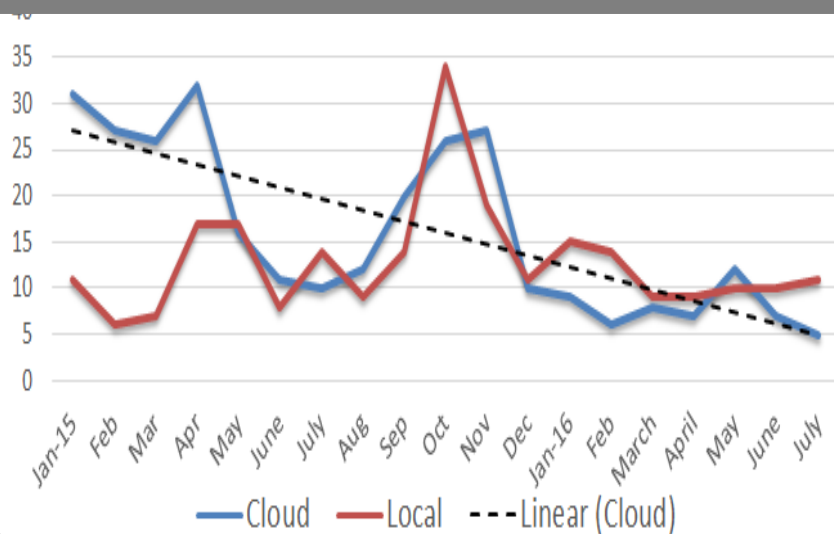
- **Number of system down events reported by customers**

Cloud Uptime

>99.9% CUSTOMERS MEET SLA

>96% CUSTOMERS MEET INTERNAL

New Products Monitored

- **Summon** – Availability **100%**
- **CampusM** - Availability **100%**
- **AquaBrowser** - Availability **100%**

Availability Reports

- Quarterly reports providing availability details per SaaS environment are published within 3 weeks of the end of the quarter
    - Reports are published on the [knowledge center](#) and are available for all customers
    - Notification related to the publication is sent to all subscribers for that environment
    - Reports include –
        - Uptime %
        - List of all unplanned downtimes
        - List of all planned maintenance
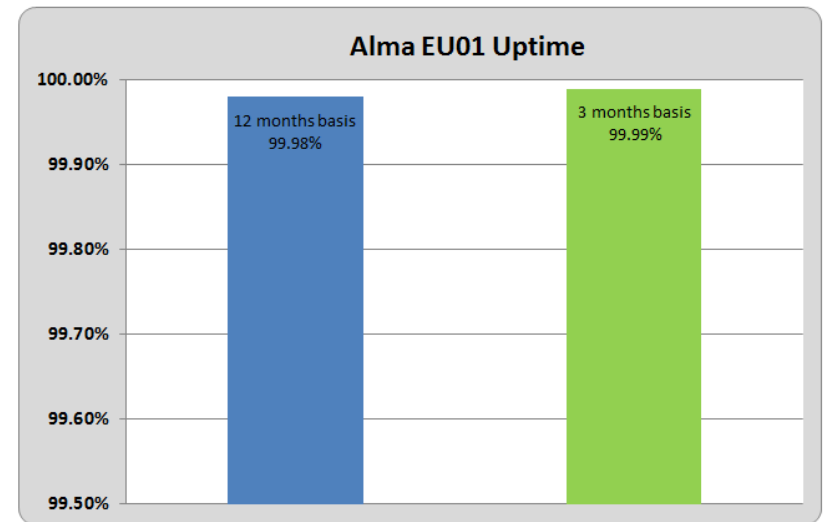
NEW CampusM reports are published from Q2 2016

COMING SOON Summon reports will be published from Q3 2016

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Privacy

- Privacy and Regulation Officer hired December 2015
  - Ellen Amsel, CISA, CISM, CISSP
    - 20+ years experience in privacy and security
    - Princeton University, Stanford School of Medicine, UC San Francisco, National Semiconductor
- Ex Libris now ISO 27018 (PII Privacy in Public Cloud)
  - First company in Israel certified
- Privacy Shield
  - Implementation planned for 2017

Latest Security Improvements

- Security updates – **customer notifications**
    - Security notification releases ("DROWN", "PDS Security")

- Cloud and applications **penetration tests** (Alma, Primo, CampusM, Summon)

- Enhanced **access control** using industry leading tool

- **Risk assessment** with external security company

- Enhanced **firewall management system** for auditing and policy compliance

- Enhanced **change management**, **asset management** and **configuration management** using **ITIL** best practices

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Problem Management

As a learning organization, Ex Libris cloud conducts many process to improve the availability and stability of the cloud.

Preventive process
- Capacity on going auditing
- Performance monitoring internal and customer experience
- Monitoring trend reviews (most alerting product, server, check)

Reactive process

Every event or major issue is thoroughly investigated to understand the reason of the failure and to find ways to avoid similar issues from re-occurring in the future.
- **RCA** – (Root Cause Analysis)
- **Lesson Learned**

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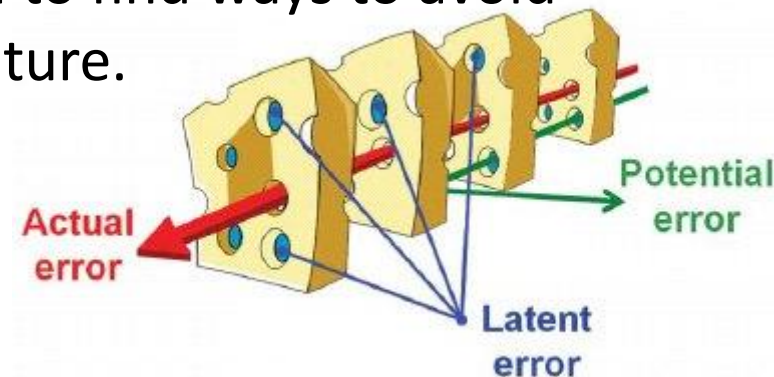
Systems - Monitoring

- 4 layers: Alert Site, Nagios, Centreon, Pager Duty
- APM – App Performance Monitoring: AppDynamics and Kibana
- Automatic logging of alerts in Night Frog
- Automation of resolution - EyeShare
- OBI soft monitoring for PC
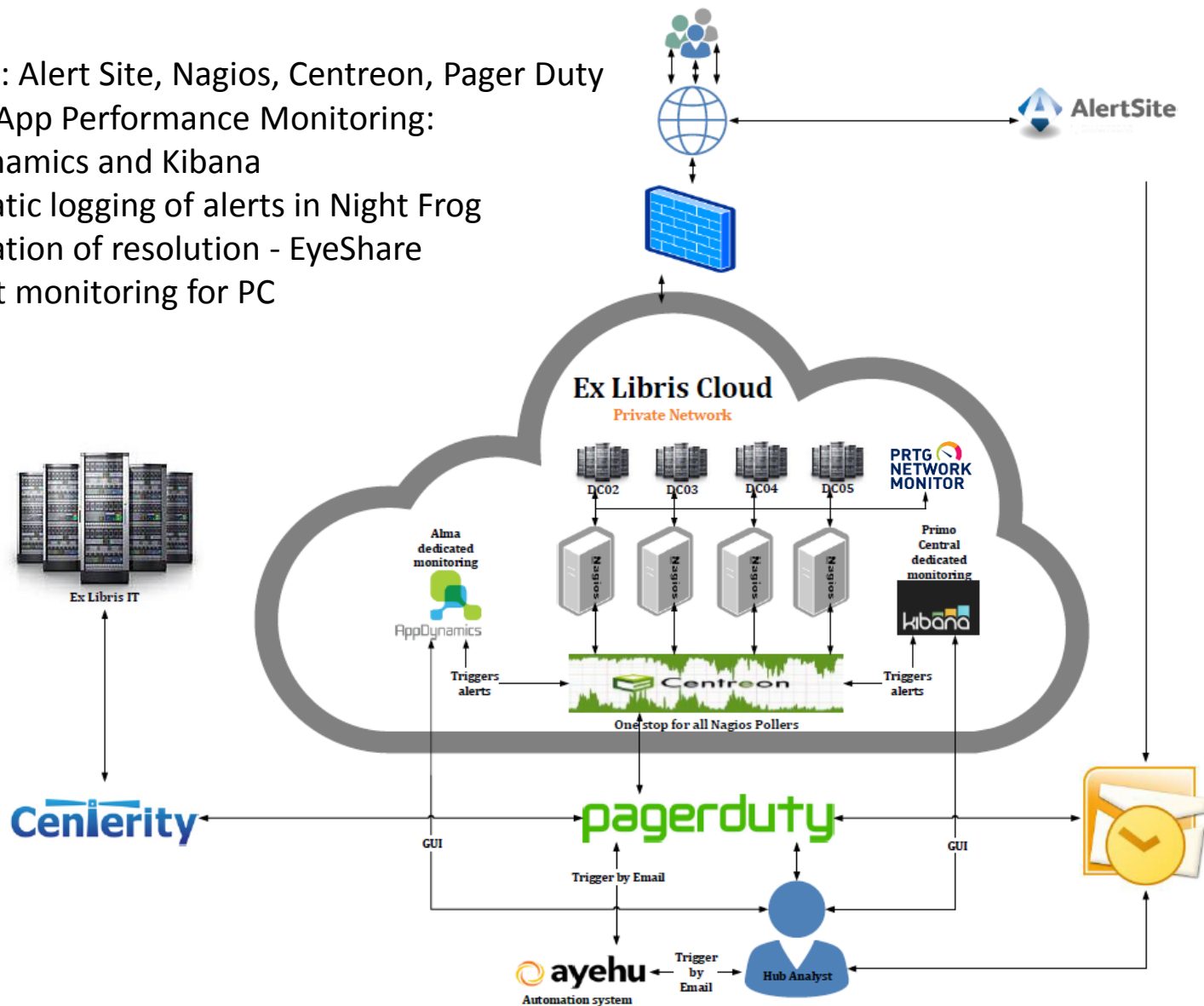
Amsterdam Data Center Cage Migration

- The project scope was to migrate the entire Amsterdam Data Center to a new dedicated cage that can facilitate Ex Libris growth for the coming years.
- The major work effort was planned and executed in Christmas 2015, Thu 24th Dec eve & Fri 25th Dec, 24 hours downtime

Planned	Actual	Notes
Move the majority amount of the data center HW within 24 hours	The HW move was finished in 12 hours	Significant part of HW was moved earlier, during regular maintenance windows
Up to 24-hours downtime for customers	About 85% of EU customers were up and running after 14 hours; 100% were up after 24 hours	MT environments (Alma, Primo TC, MT and large consortia's) were available during the whole move, except for two short interrupts (18 and 22 minutes)
Amsterdam Data Center re-architec	Significant infrastructure changes were done	Continues re-architecture is done for continues service improvement

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THANK YOU