Agilent OpenLAB CDS as a Standard @ Evonik Antwerp

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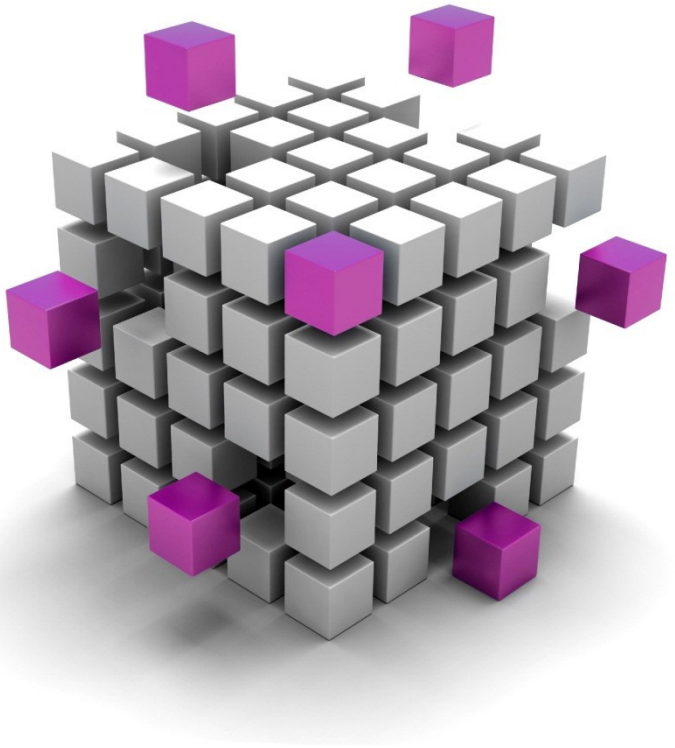
EVONIK INDUSTRIES

Scope of the presentation

- Evonik Industries AG
- Evonik Antwerpen
- Migration project Agilent OpenLAB CDS
    - Main reason
    - Approach
    - Decision : client/server
    - Proof of Concept
    - Roll-out
    - Current situation

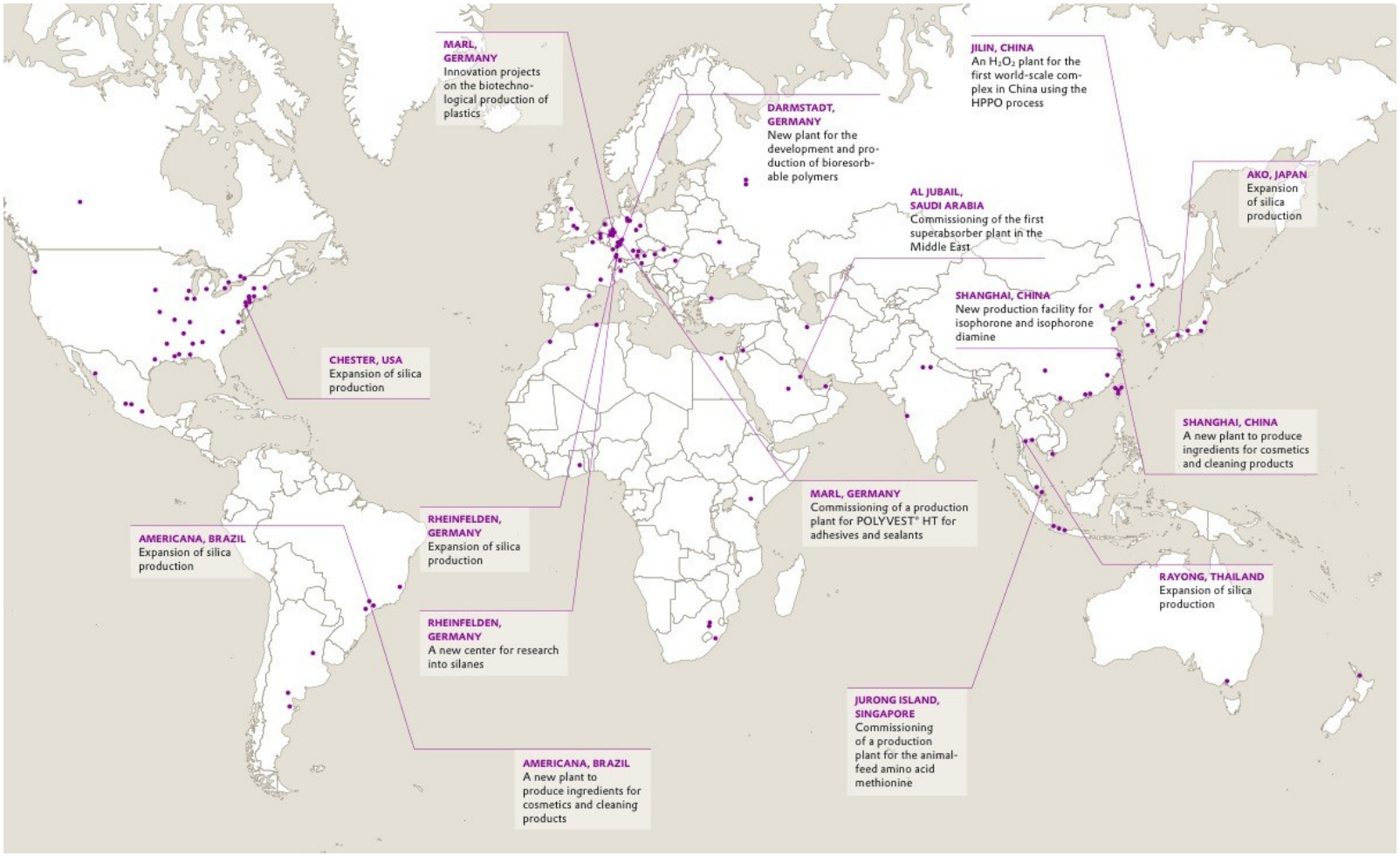


An attractive company

- Evonik is one of the world's leading specialty chemicals companies.
- The central elements of our strategy for sustained value creation are profitable growth, efficiency, and values.
- Around 80 percent of Evonik's sales come from market-leading positions, which we are systematically expanding.
- We concentrate on high-growth megatrends, especially health, nutrition, resource efficiency, and globalization.

Global presence

Production sites in 25 countries, active in over 100 countries, worldwide investments.



2014: Evonik in figures

Employees December 31, 2014
33,412

14.5 %
Profitability (adjusted EBITDA margin)

€1.867 billion Adjusted EBITDA

Return on capital employed (ROCE)
12.3 %

€12.9 billion sales

Evonik Antwerpen

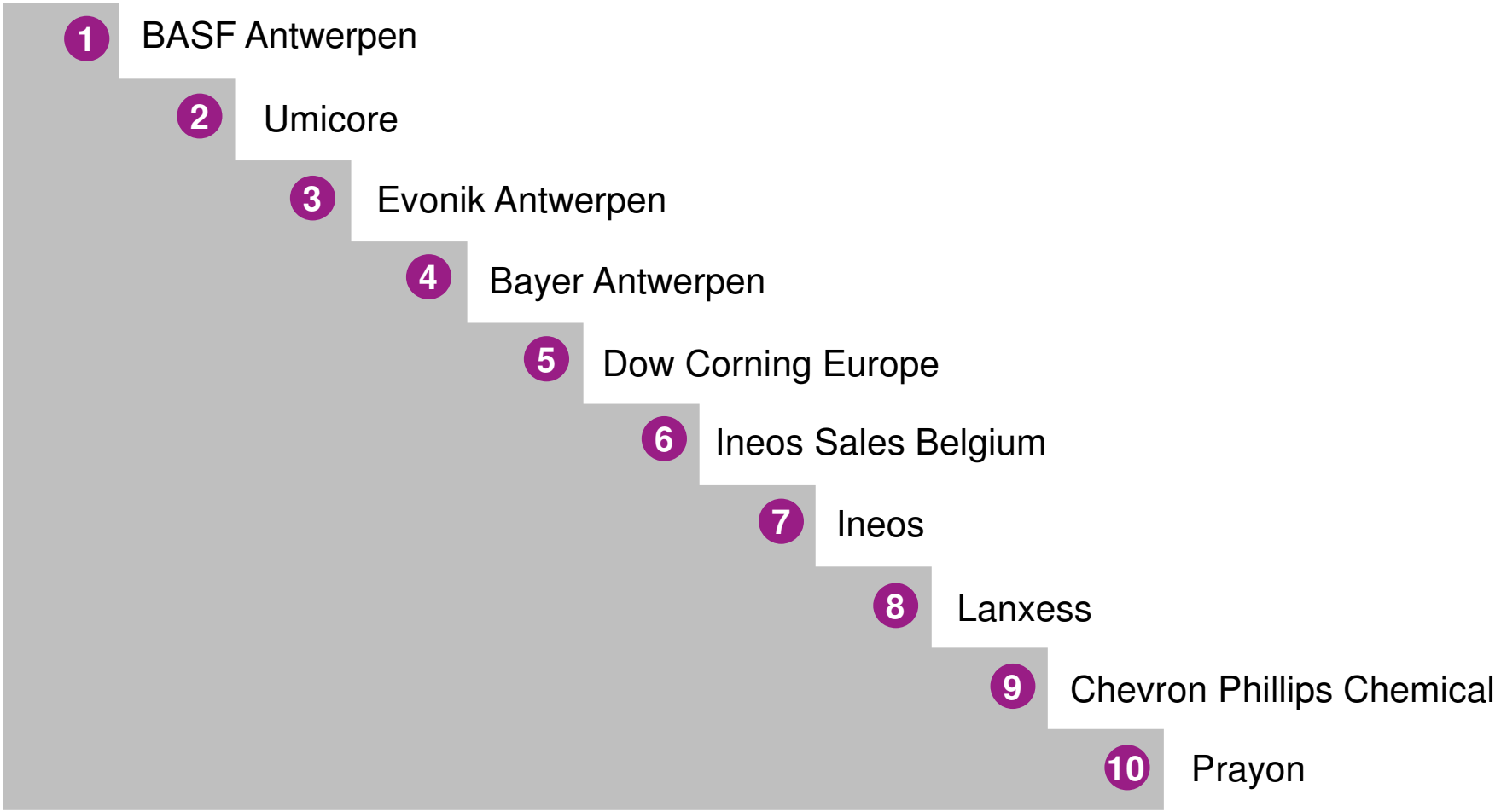
Our business, our key figures (31.12.2014)

1.061 employees

Sales: € 1,200 billion

Replacement value: € 1,683 billion

Ranking chemical industry 2013
(525 companies in Belgium)



(Trends TOP 100.000, 2015)

Port of Antwerp

Evonik Antwerpen

Evonik Antwerpen

Migration to Agilent OpenLAB CDS
Main reason for the project

- Expansion of an existing production plant (OX) in Antwerp

- Existing production lab
  - 8 Agilent GC
  - 4 PC
    - OS: Windows XP
    - Software : Agilent Chemstation Workstation
    - 1 PC for 2 GC

- Because of the expansion project
  - Increase with 11 GC

- Decision to start a project for the complete lab (19 GC) : 2 alternatives
  1. Migration to Chemstation Workstation based on Windows 7
  2. Migration to a distributed system (client/server solution)

Migration to Agilent OpenLAB CDS
Approach for the project

- Analysis of existing situation for all the labs in Antwerp
  - IT-analysis
  - Agilent in figures : Statement of work
- Requirements for
  - IT / Lab analysts / production managers
  - availability of the lab systems
  - connections to other systems (LIMS, PIMS, SAP,…)
  - future improvements
- Cost comparison (TCO) : workstation ⇔ distributed system
- Proof of Concept (PoC)
- Roll-out OX Lab
- Roll-out other Labs
- Continuous improvement

Migration project Agilent OpenLAB CDS
Existing situation Agilent june 2014

Plant	GC	(HP)LC	A/D
OX	8 (+11)		
AO	1		
PACM	4		
Central Lab	4	1	
ACA	4		
SL	3	1	
ME	2	1	1
B	2		
ACMC	7		
Summary	**46**	**3**	**1**

Migration project Agilent OpenLAB CDS
Existing situation Agilent June 2014

- Challenges from an IT perspective:
  - Different Agilent applications and software versions
  - Different types of PC hardware
  - Operating System : mostly Windows XP
  - Different backup procedures for lab data
  - Not every lab PC is connected to the IT-network (stand-alone systems)
  - In some labs : dedicated printers directly connected to PC
  - Soft-/hardware installation or in case of problems : support from vendor necessary

Migration project Agilent OpenLAB CDS
Existing situation Agilent June 2014

- Challenges from a user / customer perspective :
  - Lab analyst has to work with different kind of software in different labs
  - A lot of manual manipulations of lab data
  - Lab data only available at dedicated lab PC's (no common overview)
  - In Labs with several lab devices also a lot of used space for the PC hardware
  - Need for different levels of access rights and permissions
  - Availability is not for every lab the same

Migration project Agilent OpenLAB CDS
Decision : client/server and PoC

Summary: arguments for the final decision:

- Existing IT-Infrastructure : difficult to manage !
  For the new project : as much as possible use of standard Evonik hardware

- Common approach for the whole site has many benefits

- Client/Server solution has many benefits
  - Central storage, backup, administration (users, privileges, licenses, …)
  - Connection to other systems is easier
  - Application can be installed on a FAT-Client or on a Citrix server
  - Complete overview of the Lab in one window
  - The more lab devices, the less the costs pro device
  - Several levels of availability for the customer (fail-over)

- All kind of Lab analysis can be done with the Agilent OpenLAB CDS software

- Decision : Distributed client/server system if PoC and Fail-over test have positive result

Migration project Agilent OpenLAB CDS Proof of Concept : IT-Infrastructure

- Servers
  - Storage : storing centrally the data/methods/sequences
  - Shared Service : manage access to other components (Agilent License necessary)
  - Database : SQL : keeping track of privileges/central system configurations

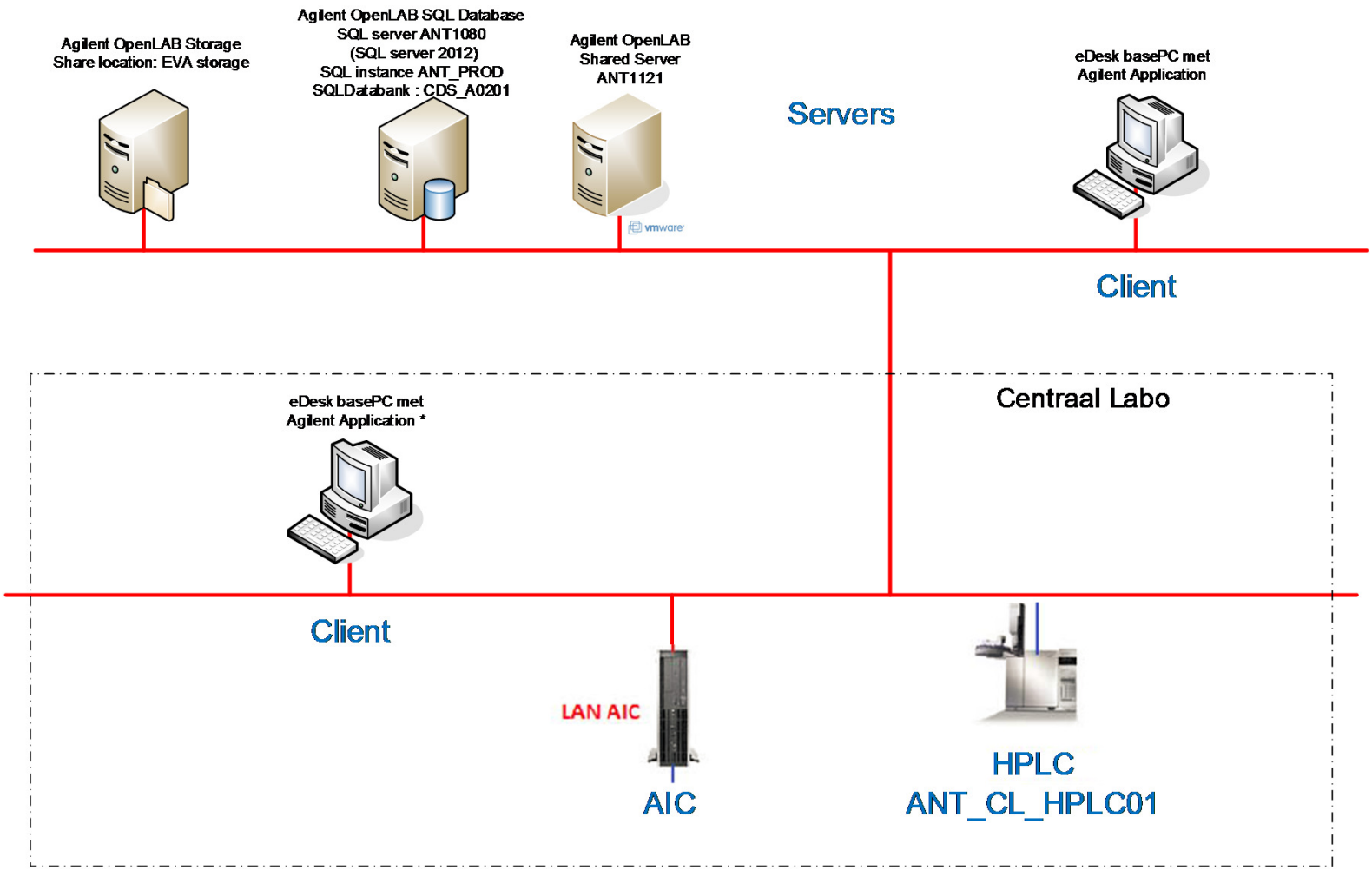
- Client
  - Agilent Instrument Controller (AIC) : standard Evonik PC
  - Agilent License for AIC necessary
  - Agilent Application : Client as well as Citrix

- Users/Groups
  - Users/groups : managed by Evonik Active Directory

- Network
  - All devices and AIC on the same IT network

- Lab Device Agilent HPLC : Agilent License for HPLC Instrument

Migration project Agilent OpenLAB CDS
Proof of Concept : IT-Infrastructure

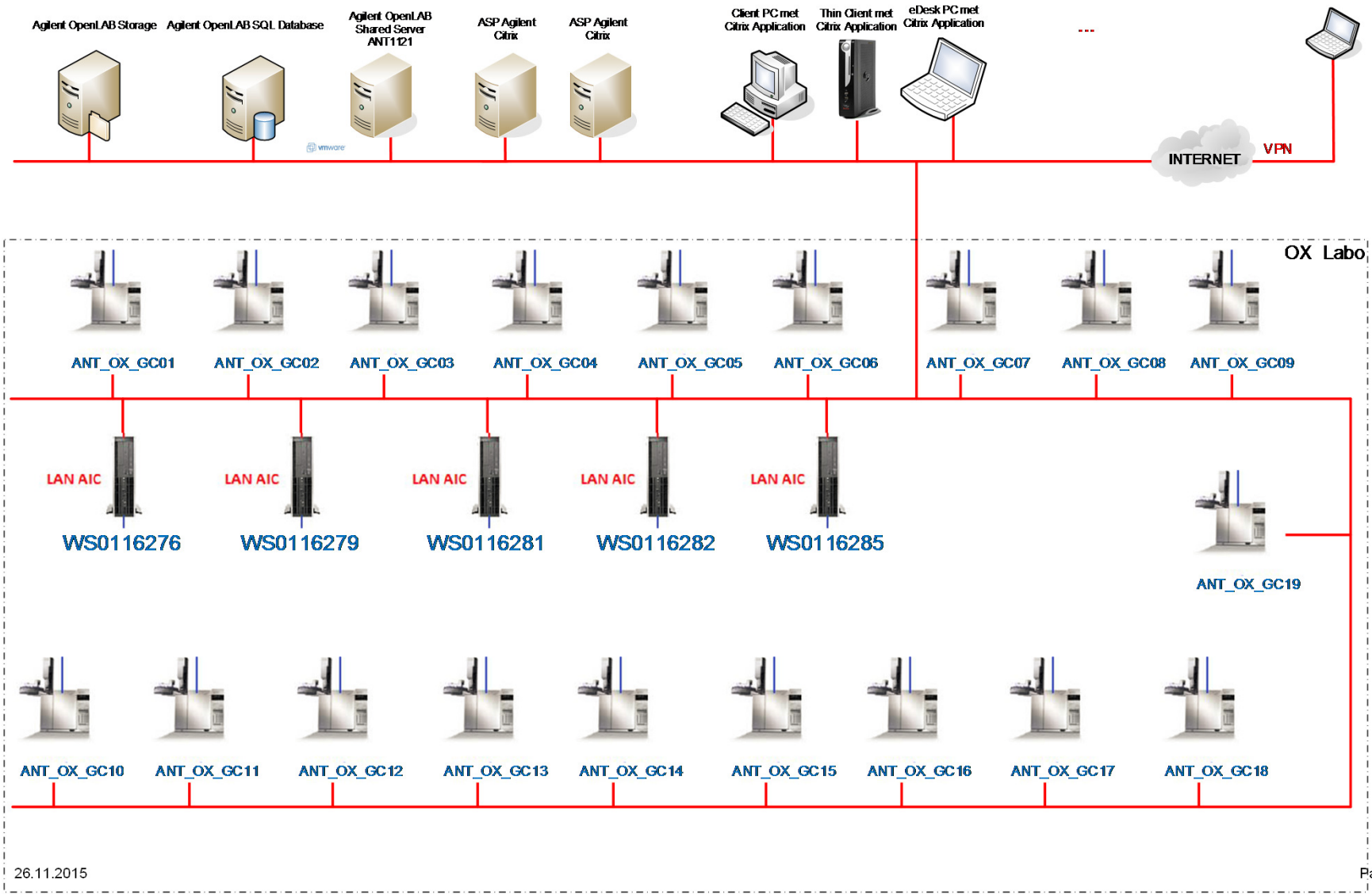


Migration project Agilent OpenLAB CDS Proof of Concept : Fail-over

- Normal situation
  - In case of (short) network/server outage: AIC will continue to acquire and buffer data of ongoing analysis
  - In case of AIC problem; easy to connect the devices to another AIC (max. 4 devices)

- For critical instruments/Labs : backup plan in case of an IT-incident
  - “Fail-over” solution : (Agilent License necessary)
  - Installation on a standby workstation or an existing AIC is possible
  - Change on an AIC between “client/server” and “fail-over” mode : can be done by operator/analyst without IT (procedure)
  - “Fail-over” mode
    - Is an option
    - acquiring data up to 4 Instruments on 1 Fail-over AIC
    - AIC works like a local workstation in Fail-over mode
    - Synchronization between fail-over AIC en servers takes place before and after the IT-Incident

Migration project Agilent OpenLAB CDS Roll-out OX-Lab

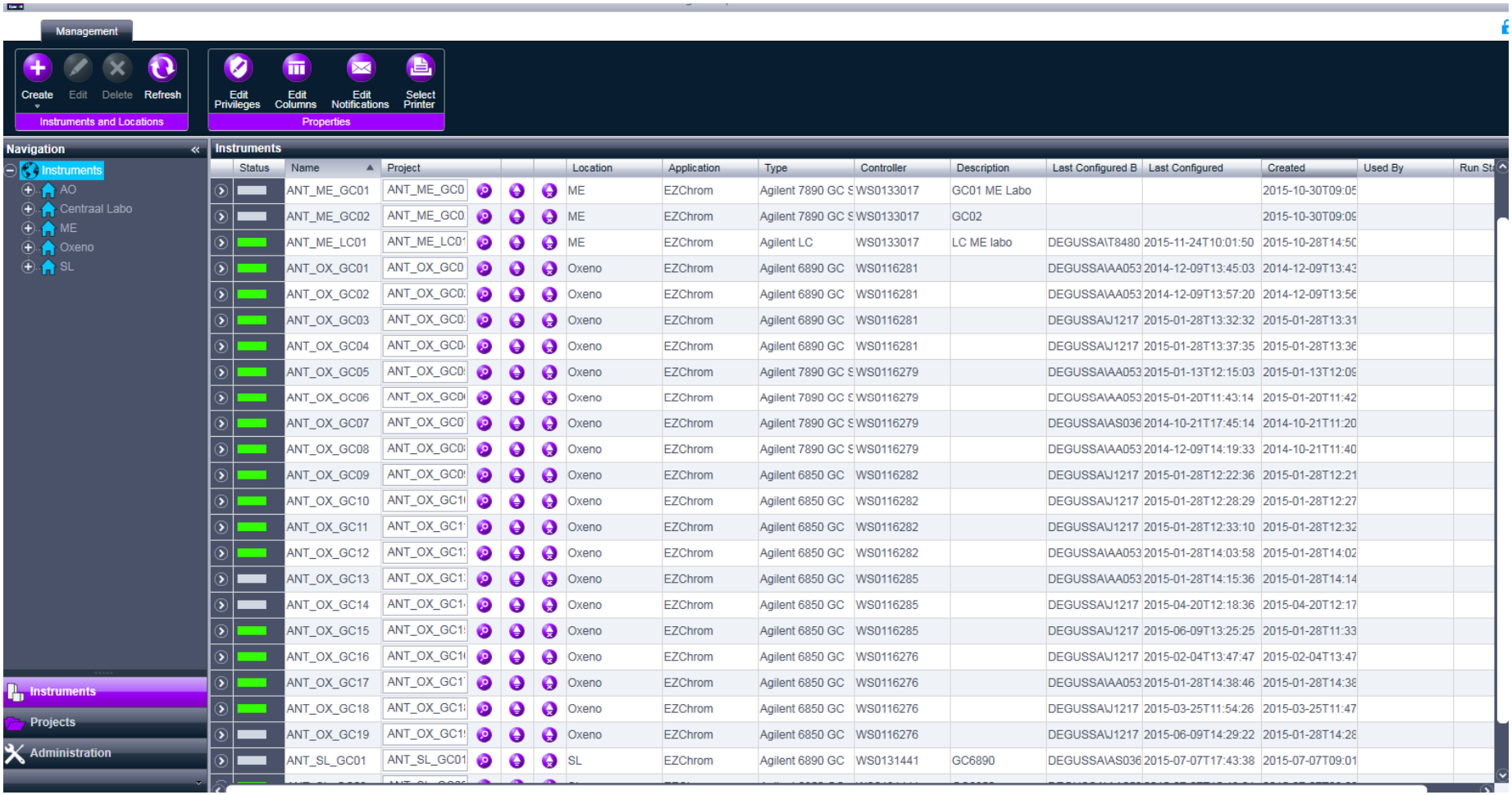


Migration project Agilent OpenLAB CDS
Current situation / next steps

- Current situation
  - 26 Labdevices in 5 different labs are connected to the client/server system
  - Other labdevices : 2016

- Continuous improvement
  - Firewall implementation
  - Connection to PIMS/LIMS/SAP : 2016

Migration project Agilent OpenLAB CDS
Agilent OpenLAB Control Panel

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