IAM in the hybrid cloud

Platform voor Informatiebeveiliging

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CISA, CISM, CISSP, CCSP

Introduction

From:

- Project Manager System Development (8 years)
- IT auditor (5 years)
- E-commerce project leader (3 years)

- IT Risk advisor (6 years)
- IAM Governance (6 years)

- Cloud: Domain spoc CISO (1½ year)

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To:

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IAM in the hybrid cloud

1. Cloud & DevOps
2. IAM Governance
3. IAM for Cloud
4. Implementation
5. Conclusions

Cloud & DevOps

From:	To:
On-premise own IT-infrastructures	On-premise Private Cloud Dedicated private clouds in public clouds
Self build applications	SaaS solutions Continuous Integration / Delivery DevOps
Coordination - manual actions	Orchestration – fully automated
Security risk advice and assesments	Inherent security

IT (and CISO) will be fully automated

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1. Identity & Access Management goals

1. **One IAM Governance, worldwide.**
2. **Be able to demonstrate “in control”.**
3. **Effective and efficient processes for Identity and Access Management.**

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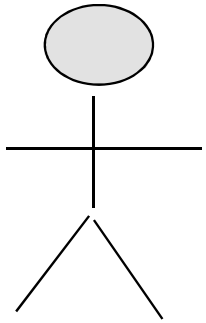
1. IAM principles

1. Business is accountable
2. Role Based Access
3. One IAM governance for ABN AMRO*
4. Conceptual models, to be able to support tailored implementations
5. Risk based, Business driven
6. Reuse of systems and processes when possible

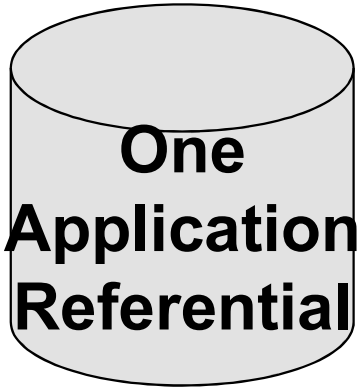
*	**ABN AMRO**	**Subsidiaries**	**Partners/ Suppliers**	**Joint ventures**
	Internally + externally hired employees in NL + foreign countries	e.g. ABN AMRO Lease, ICS	e.g IBM, TCS, Infosys, Stater	e.g. ABN AMRO Insurance, Geld Services Nederland

1. IAM: two referentials:



Identity Management

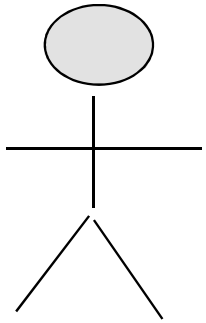
Each employee is screened
and has an unique Corporate ID.



Applications

Each application has
an unique Application ID

1. Dealing with 8 IAM events:



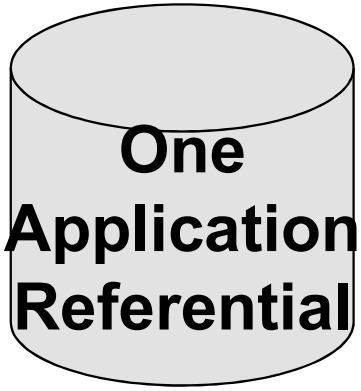
Identity Management

Corporate ID

Identity:
1.Joiner
2.Mover (change job)
3.Leaver

Application:
4.New
5.Change
6.Remove (Decommision)

Access rights:
7.Assign Role*
8.Remove Role*



Applications

Application ID

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* When Roles are made by the Role Manager first

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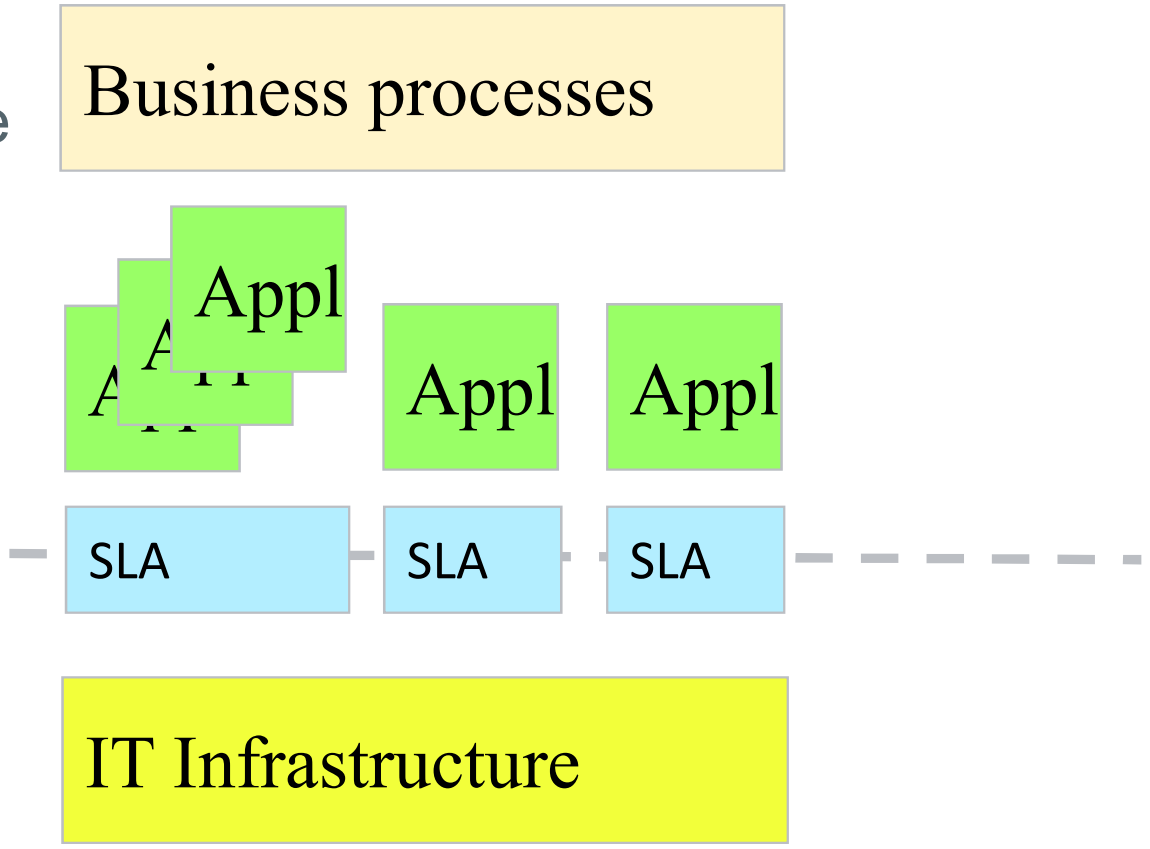
Scope: IT access rights

Three domains:

Business: here out-of-scope
(End-users using the applications)

IT Development
(Develops applications, DTAP)

IT Services
(Runs the applications + infrastructure)



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IT Development organisation

Approx. 50 Grids
with 400 scrumteams

Accountability:

- Each application is the accountability of (only) one Grid owner.
- One of the scrumteams will be responsible for the application.

Responsiblities of the scrumteam:

- Development & maintenance of the application
- Correct registration in the CMDB
- Access rights of members scrumteam

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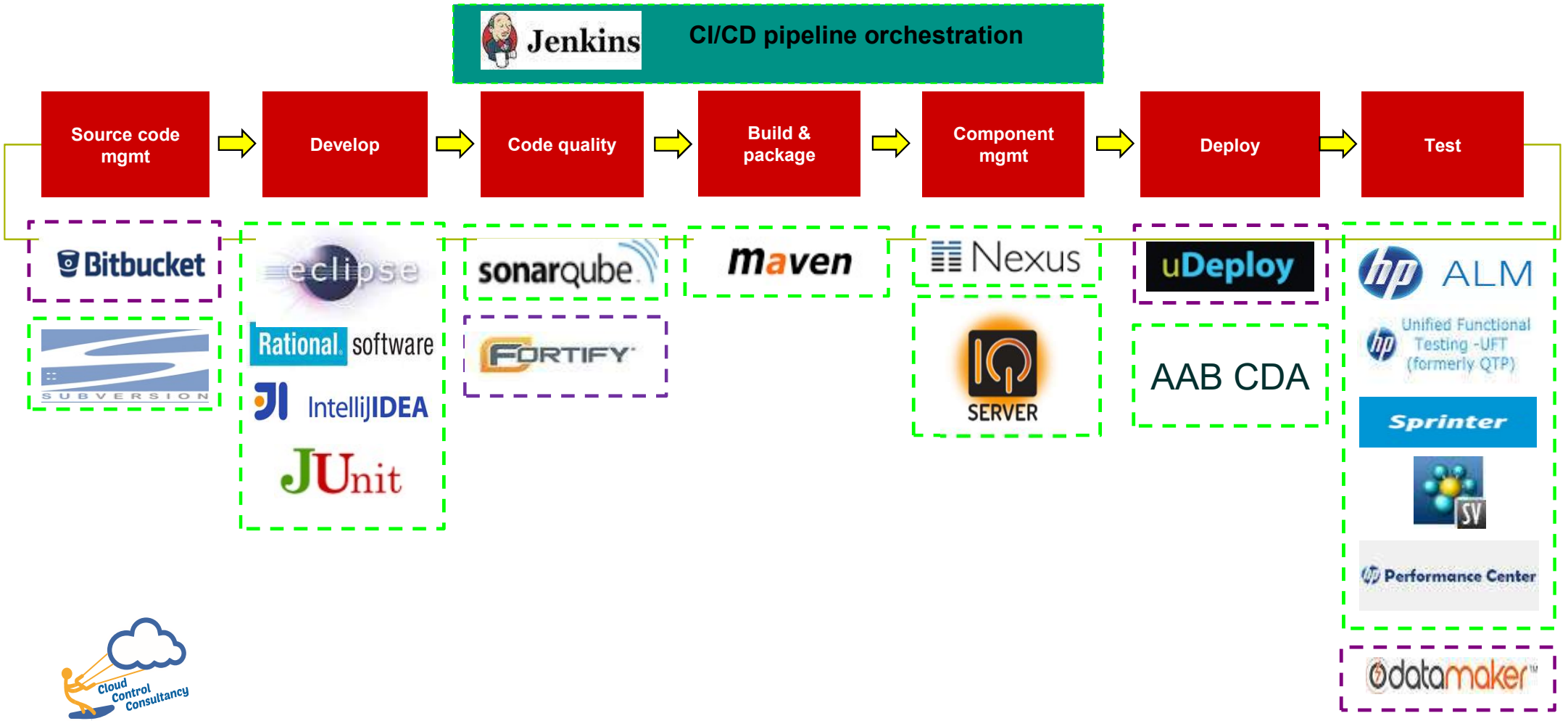
Continuous Integration / Continuous Delivery



IAM for Cloud - requirements

1. Zero-touch platforms
   - With CI/ CD you do not want anybody having access on OS-level anymore
   - Only the CI/CD tools need access to OS-level

2. IAM needs to be fully automated (cloud is very dynamic)

3. In practice not all CI/CD tools are ready to use
   and not all applications can be deployed with CI/CD tools yet

IAM for Cloud - solution

1. Use RBAC to have access to CI/CD tools with normal user id

2. Integrate Identity Access Management with the CMDB
   - Before you request any VM you need the Application ID
   - Application ID is used to label all CI's
   - Maintain the organisation structure of Grids and scrumteams in CMDB
   - With the Application ID all ITIL processes are directly effective for the VM

3. Use sudo rights for access rights on OS-level with special user id

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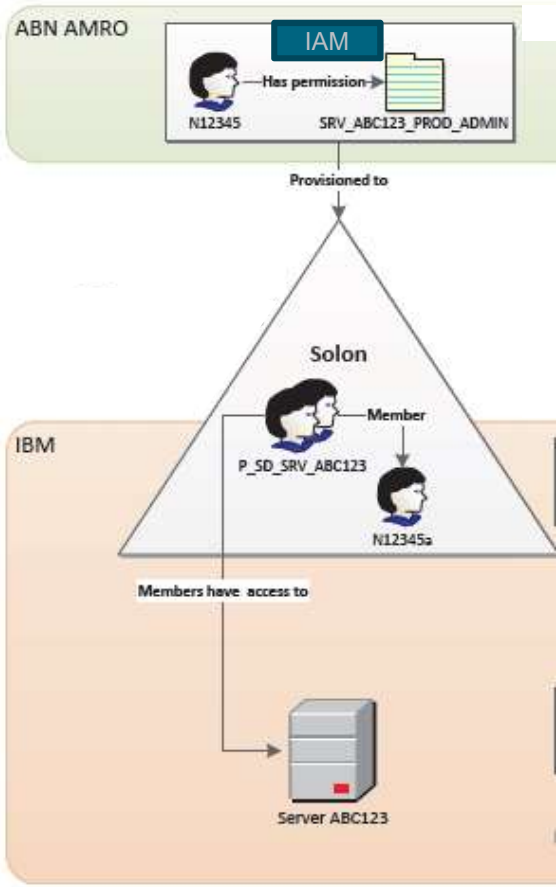
Basic principle

Access Management systeem

Active Directory



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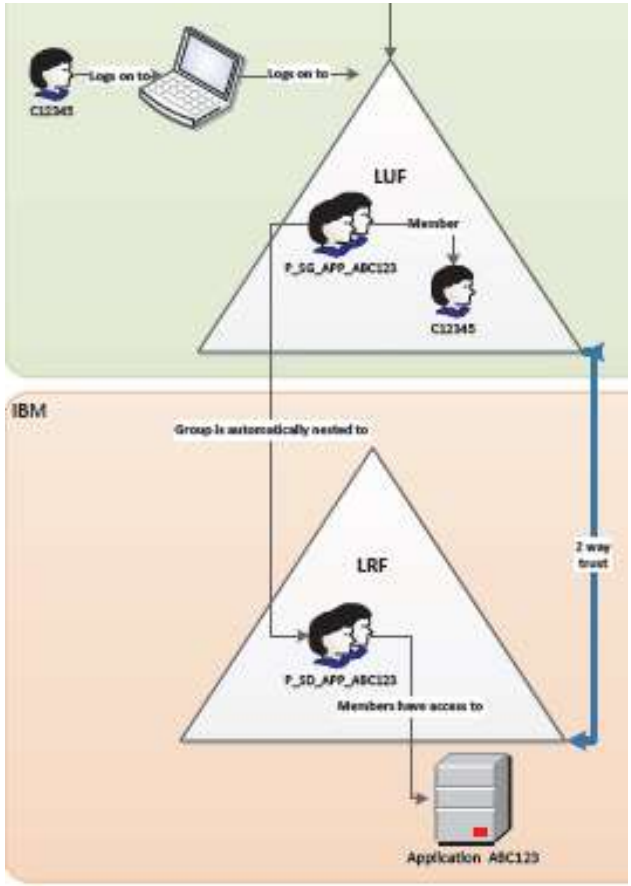
Physical separation between Resources and Users

Launcher User Forest

Launcher Resource Forest



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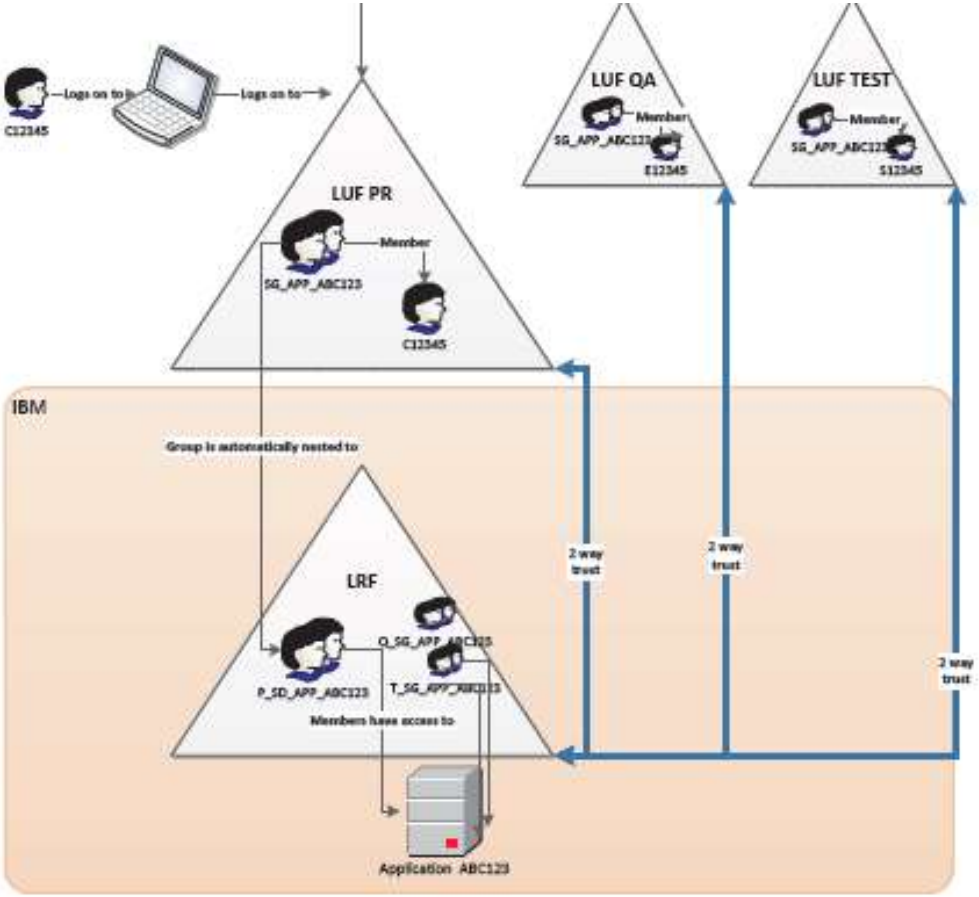
Physical separation between PR, QA and ST



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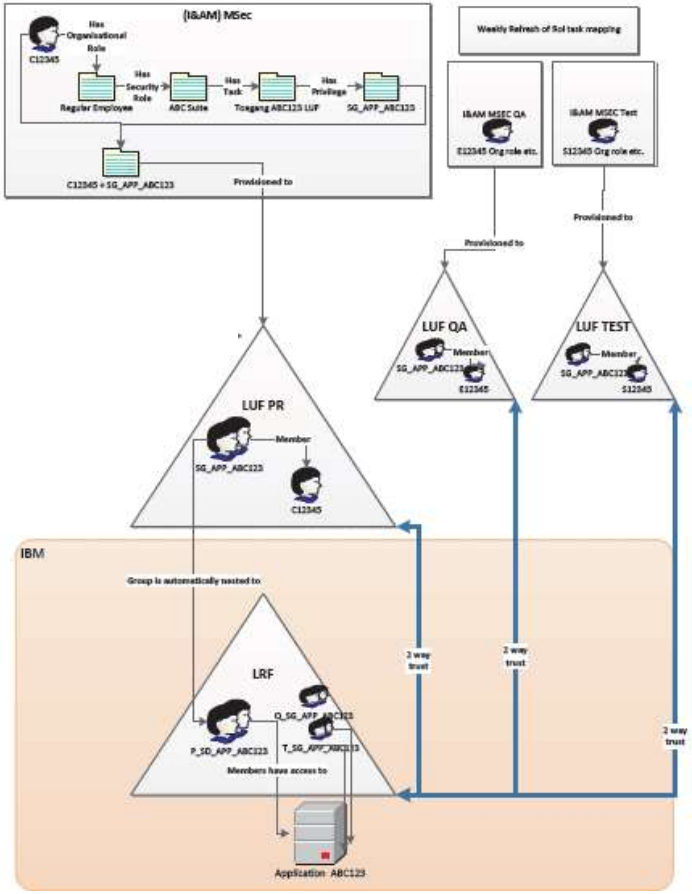
Full scheme of the 4 Launcher AD's



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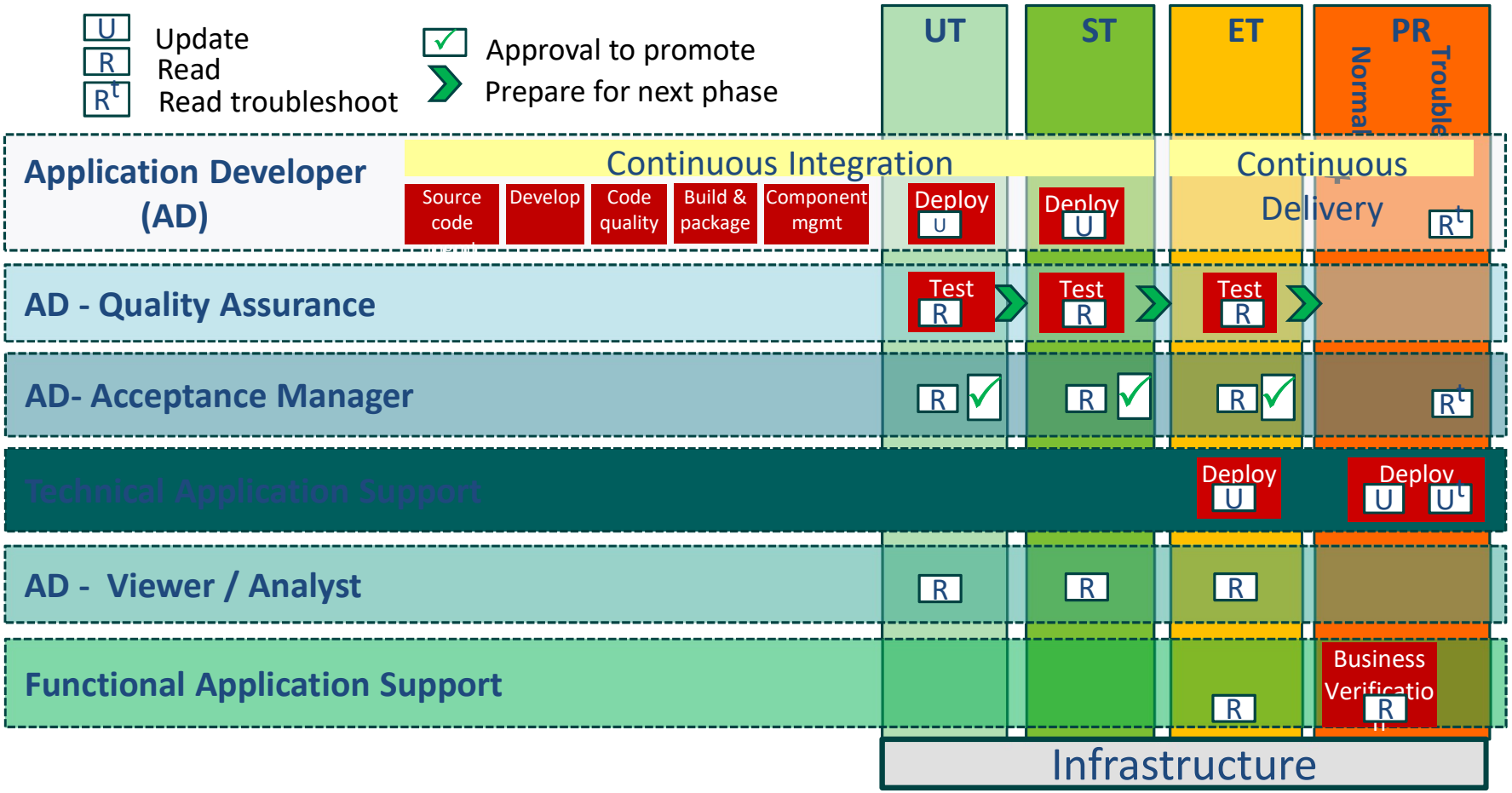
High level authorisation matrix



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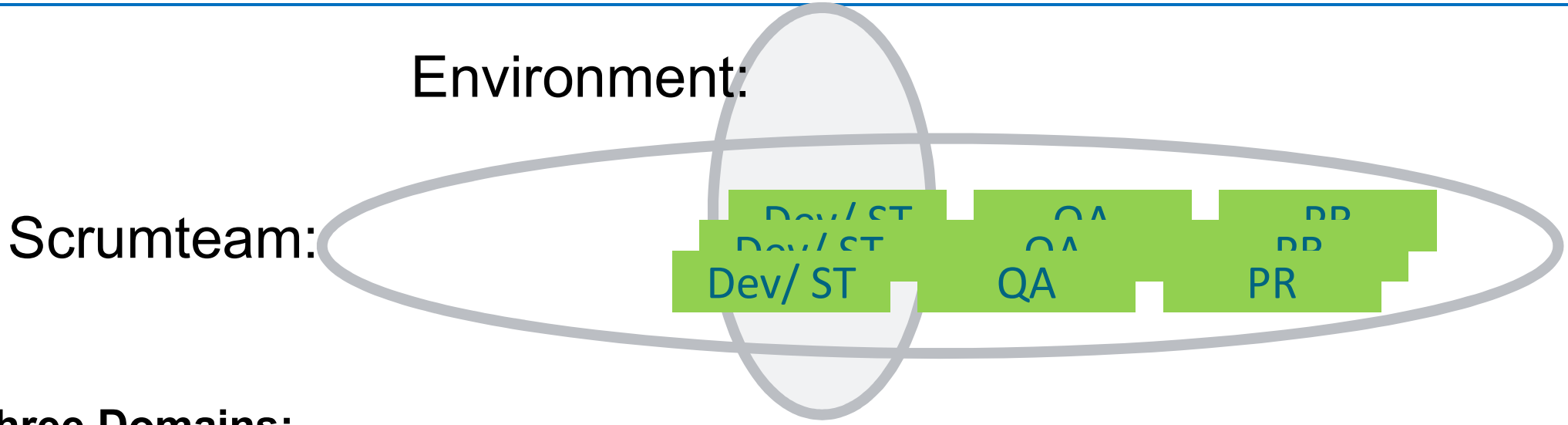
Owners and environments



Three Domains:

Consumer: **Business domains: Business chains of processes (not in scope)**

Grids/scrumteams: Channels, Markets, Functions, Transactions, etc.

Provider: **Operating system**

Environments: **ST = System test**

QA = Quality Acceptance

PR = Production

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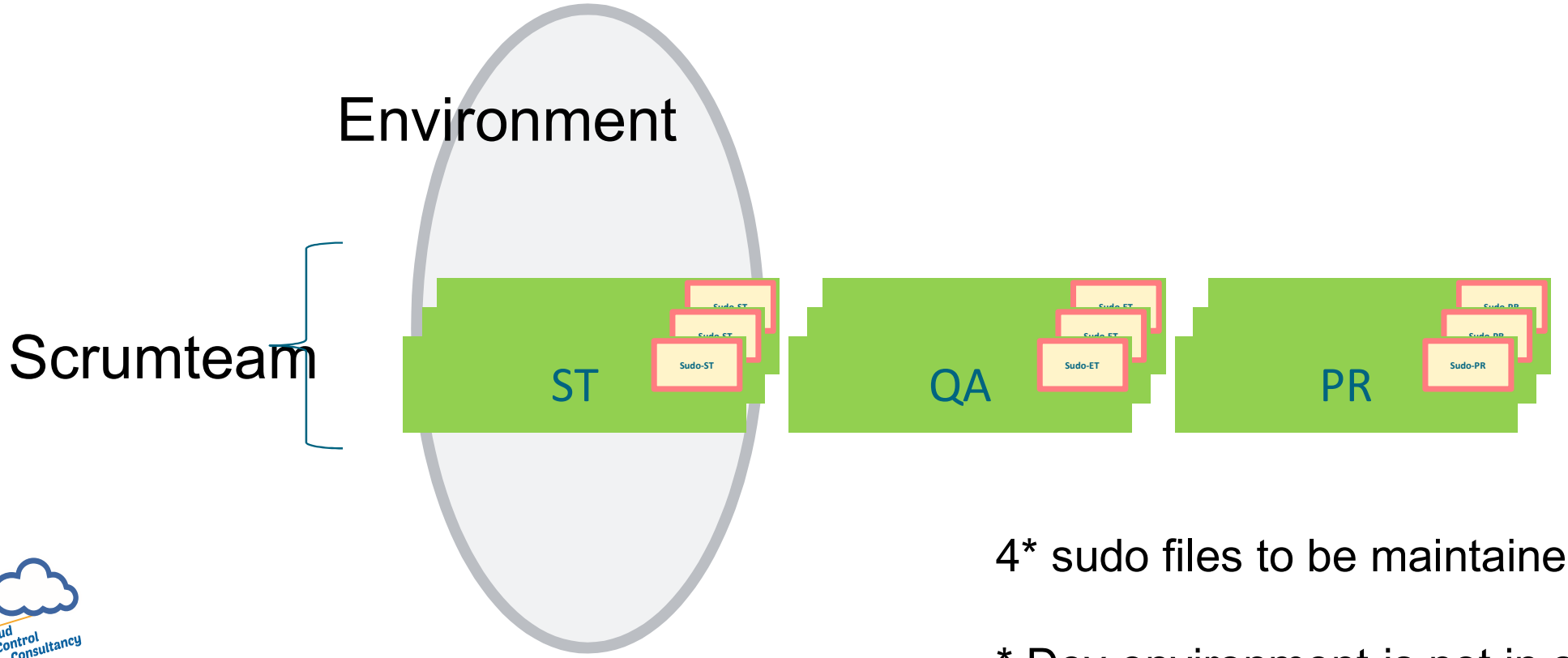
Cloud: New Sudo files - one for each environment!

Linux is used by approx. 75 – 80 % of the applications



4* sudo files to be maintained

* Dev environment is not in scope

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Sudo file characteristics + Design principles 1 - 3

Group (for each actor)	**sudo commands**
Consumer:	
Developer:	sudo command 1
	sudo command 2
	sudo command 3
Application Support:	sudo command 9
	sudo command 11
Functioneel Beheer:	sudo command 27

Design principles:

Sudo file: 1. unique per environment (ST of QA of PR
2. standard for each Cloud VM

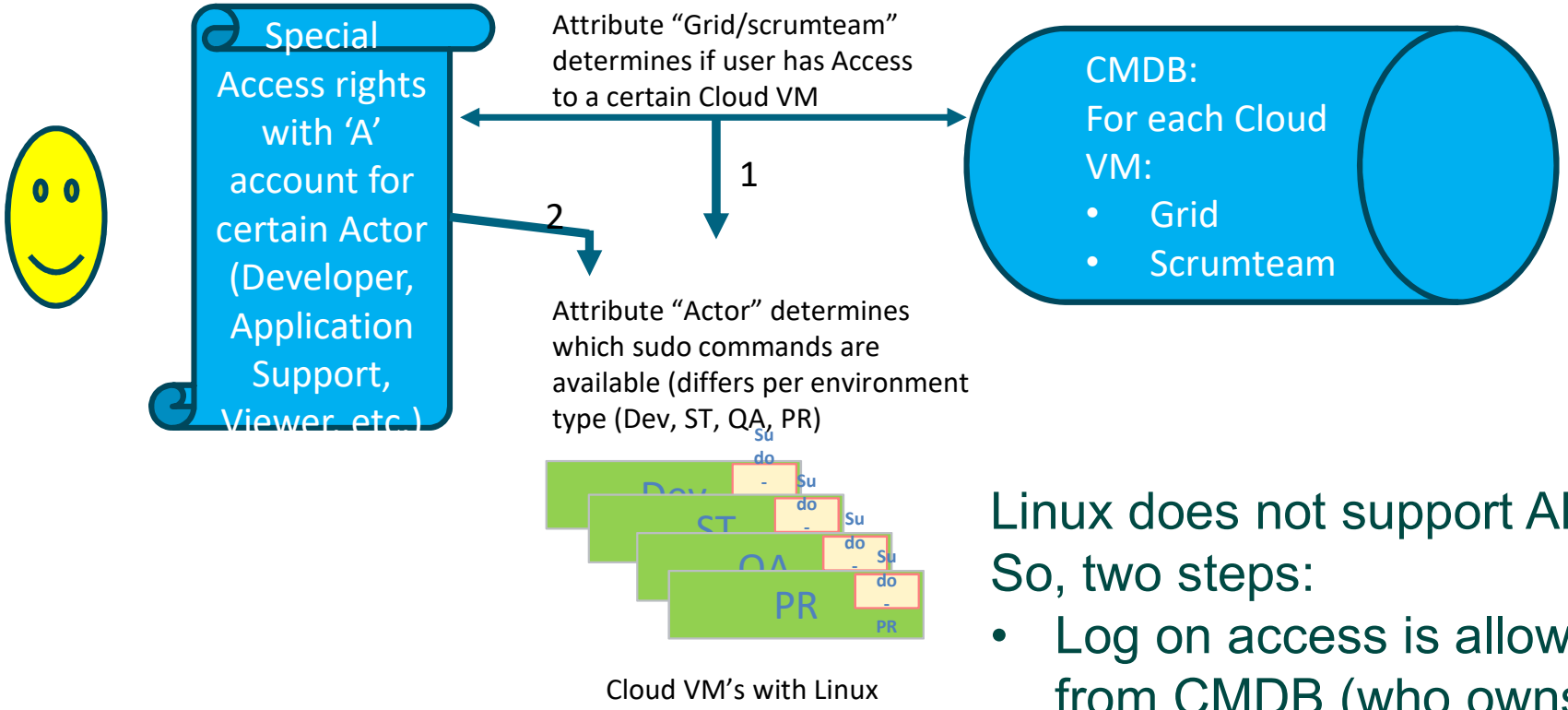
Sudo rules: 3. sudo commands per actor (Consumer)

Sudo file example

```
# FOR CMS Linux VMs
User_Alias OPER = %P_SD_SYS_LinuxOperators, %P_SD_SYS_WASOper
User_Alias SYSMAN = %P_SD_SYS_LinuxAdmins
User_Alias MWAMAN = %P_SD_SYS_WASAdmin
User_Alias SUPPORT = %P_SD_SYS_WASSupport
User_Alias READONLY = %P_SD_SYS_LinuxDeveloper, %P_SD_SYS_WASReadOnly
User_Alias MQAMAN = %P_SD_SYS_MQAdmins

# ORIGINAL - HVE
#User_Alias OPER = %oper
#User_Alias CONTROL = %control, %secadmin
#User_Alias SDDMAN = %sddman
#User_Alias SYSMAN = %sysman
#User_Alias MWAMAN = %mwaman, %dbsysman, %webman
#User_Alias SUPPORT = %support
#User_Alias SECDESK = %secadmin, %security
#User_Alias READONLY = %readonly, %sysdev, %appldev
```

IAM for Cloud – sudo access (Exception)



Linux does not support AD groupnesting
So, two steps:

- Log on access is allowed by attribute from CMDB (who owns the VM)
- The AD-group determines what sudo commands are available (standard for all VM's)

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Identity & Access Management

IAM for Cloud

One logical model; **implementations per native Cloud**:

1. **Happy flow**: personal user id and RBAC role (LUF AD)
2. **Admin flow**: ‘A’ user id (like N12345A) in LRF AD:
   - ApplDev for Developer (Dev & ST)
   - ApplMan for Maintenance (QA & PR)

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Conclusions and last additions

IAM is key for managing access in the hybrid cloud:

- Centralise, Standardise, Automate
- Integrate with CMDB
- Data quality is key
- One logical model for all Cloud environments (AWS, Azure, IBM, bare metal, RACF on mainframe)
- Use Application ID’s everywhere to label everything

Thanks for your attention

“It's not about having an idea, but making it happen”