M.Sc. Aleksander Lodwich
Software Engineer at ITK Engineering AG
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Secure Collaboration in Virtual Organizations

Conference Impulse

- public -

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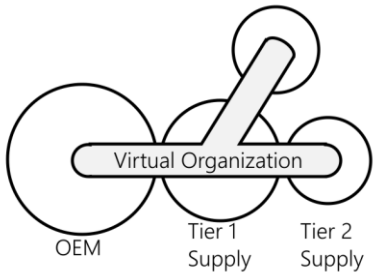
Interoperability & Security



What is slowly recognized:
It is actually the
Virtual Organization (VO)
that brings out the product

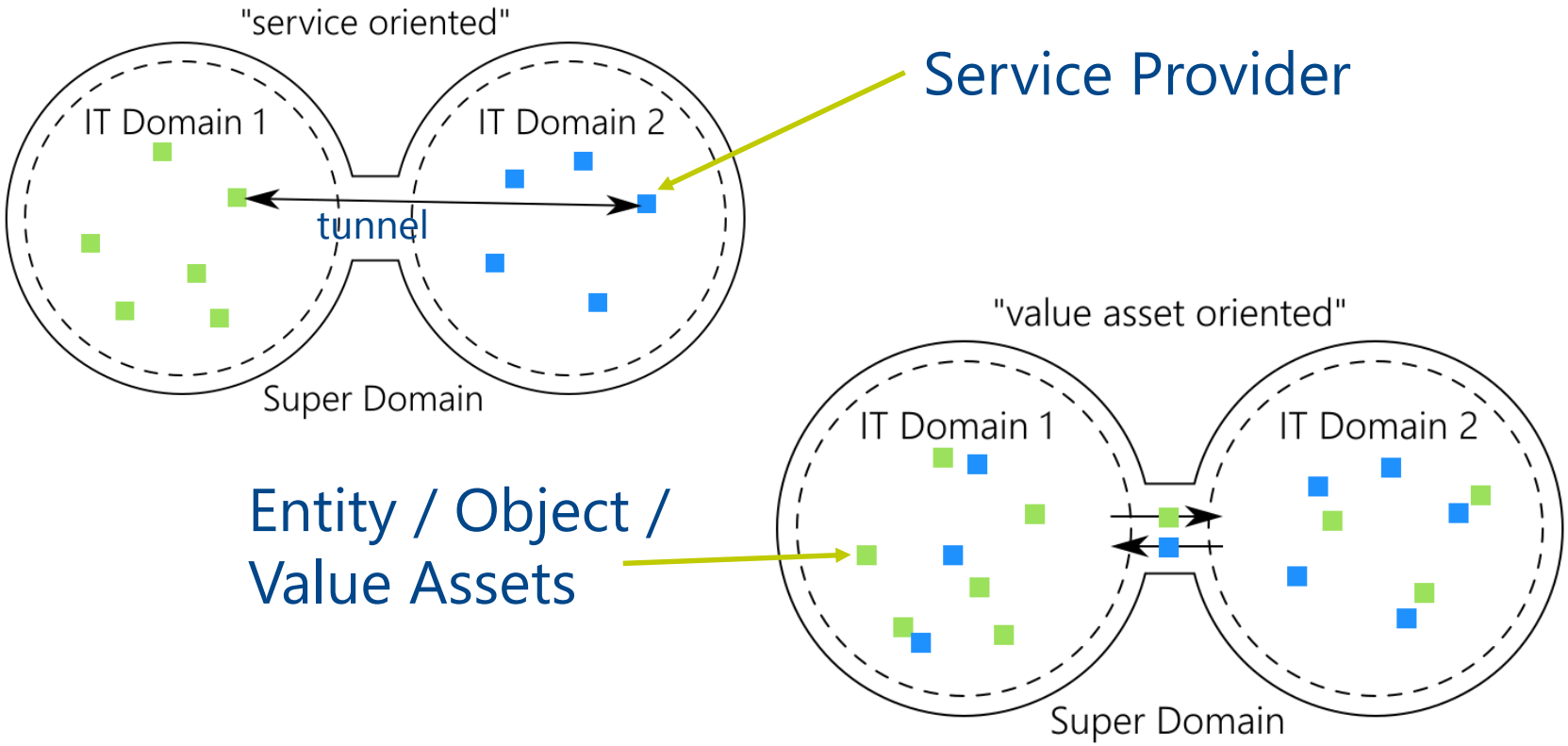
- Goals of CRYSTAL:
  - Reduce or eliminate obstacles to working together by addressing:
    - Interoperability
    - Transport of Data
    - Security / Authentication

standardization
encompasses all three

- Problem:
  - Not all parties would like to use IOS/OSLC as a mechanism to realize collaboration between companies
  - The question is why?

Two Views on Virtual Organizations

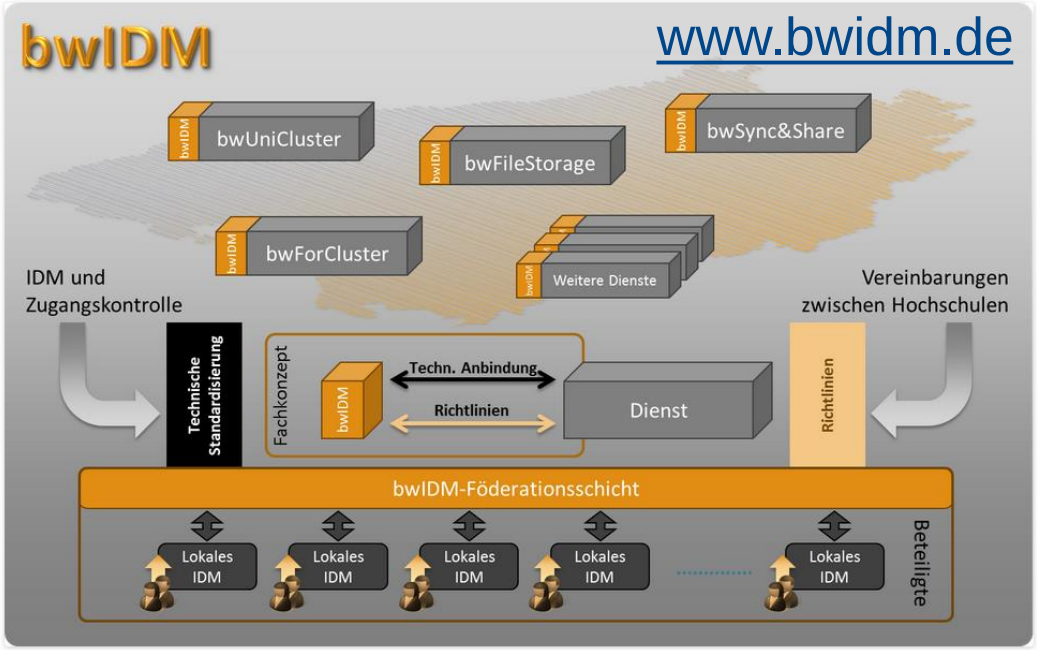
- *Federation of Services* or *Asset Space*?



Hypothesis: People who do not want to use OSLC/IOS take the „value asset oriented“ perspective

The Federation of Services

- Virtual Organizations taking the „Federation of Services“ approach mainly intend to improve shared use of expensive resources.
  - Clouds (Externalization)
  - Federations



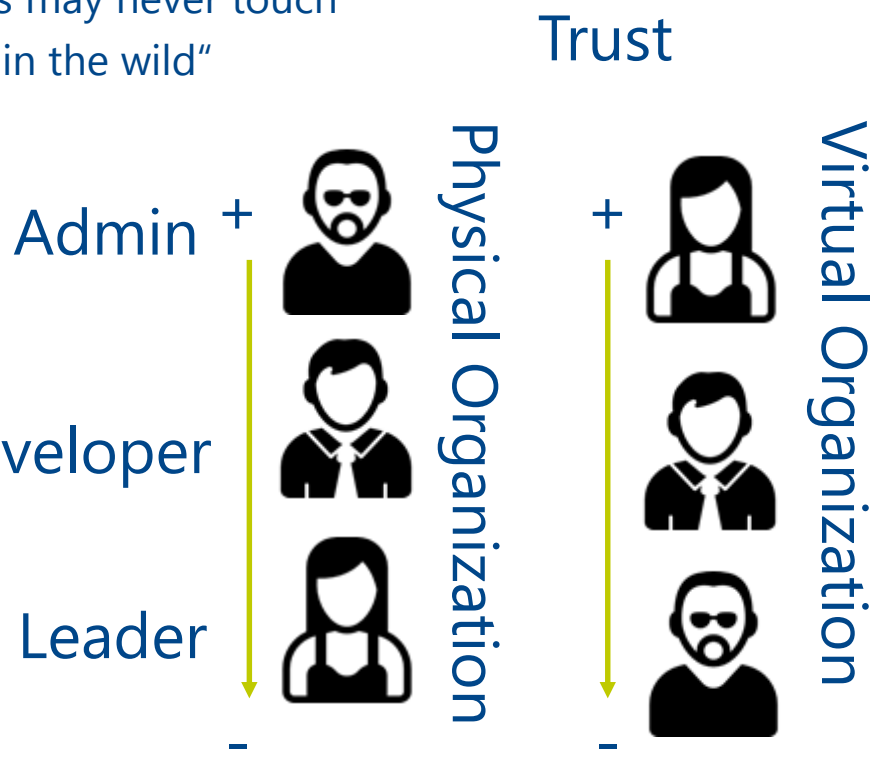
Federation of Services can contribute positively to *organizational interoparability*

Creates a de-facto uniform domain

VOs valuing their critical assets

- Virtual Organizations taking the Value Asset perspective do care about quite different things:
  - Deployment and conversion of capabilities (data and functions) onto heterogeneous IT infrastructure
  - Rely on a generic channel concept (rather than TCP/IP connections) which must be safe → IT infrastructures may never touch
  - Enforcement of usage rules for assets „in the wild“
  - Rearranged trust relationships → requires own security concept
  - Minimze need for common technical standards and legacy
  - Want to detect corruption or reduced trust like „heat peaks“ in a „cooling chain“

seek equivalence for purpose

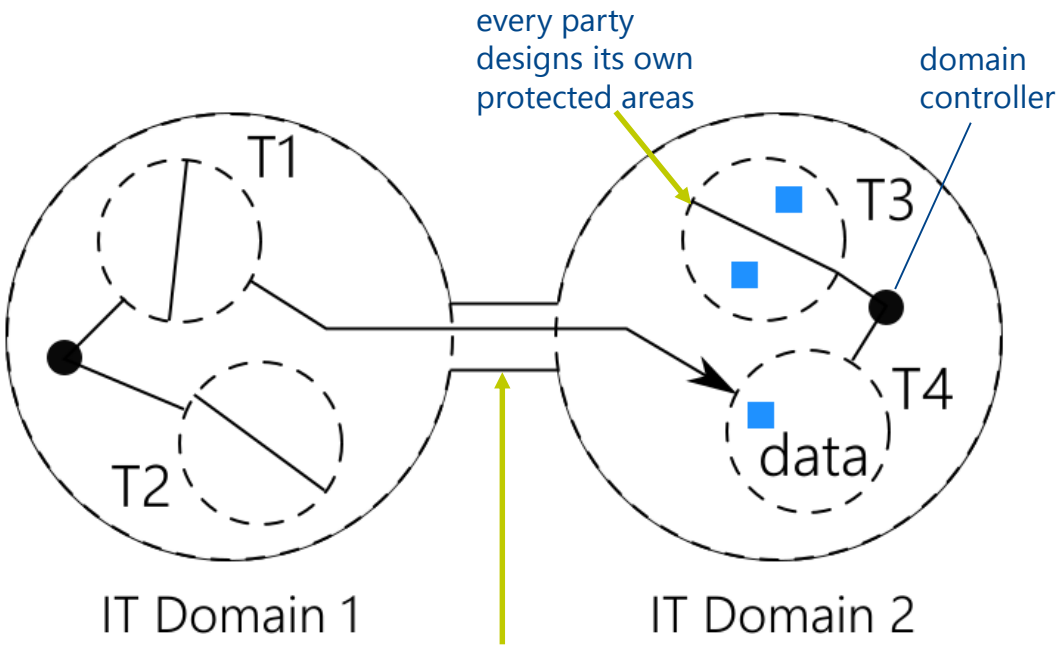


Security in OSLC follows Federation of Services approach

- Security in OSLC relies on existing technologies
  - Physical Security
  - Transport Layer Security
  - Domain Authentication via HTTP Basic Auth, Forms or OAuth

In theory
data never leaves
control of owner

In truth
data can go
anywhere



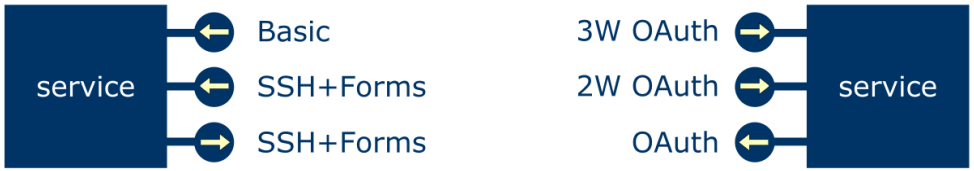
OSLC requires network

OSLC Flavors, Security and Interoperability

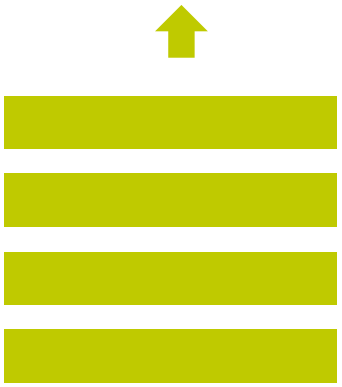
- OSLC standardizes a tall stack of technologies:
  - TCP/IP Networks
  - Encryption Layers
  - HTTP Protocols
  - RDF/S and XML
  - LDP Specifications
  - OSLC Ontologies and Concepts
  - OAuth
  - JavaScript Features
  - Other unnamed W3C Specifications

by experience strongly glued technologies do inhibit various kinds of innovation

the taller the stack of technology to be standardized the more brittle it gets

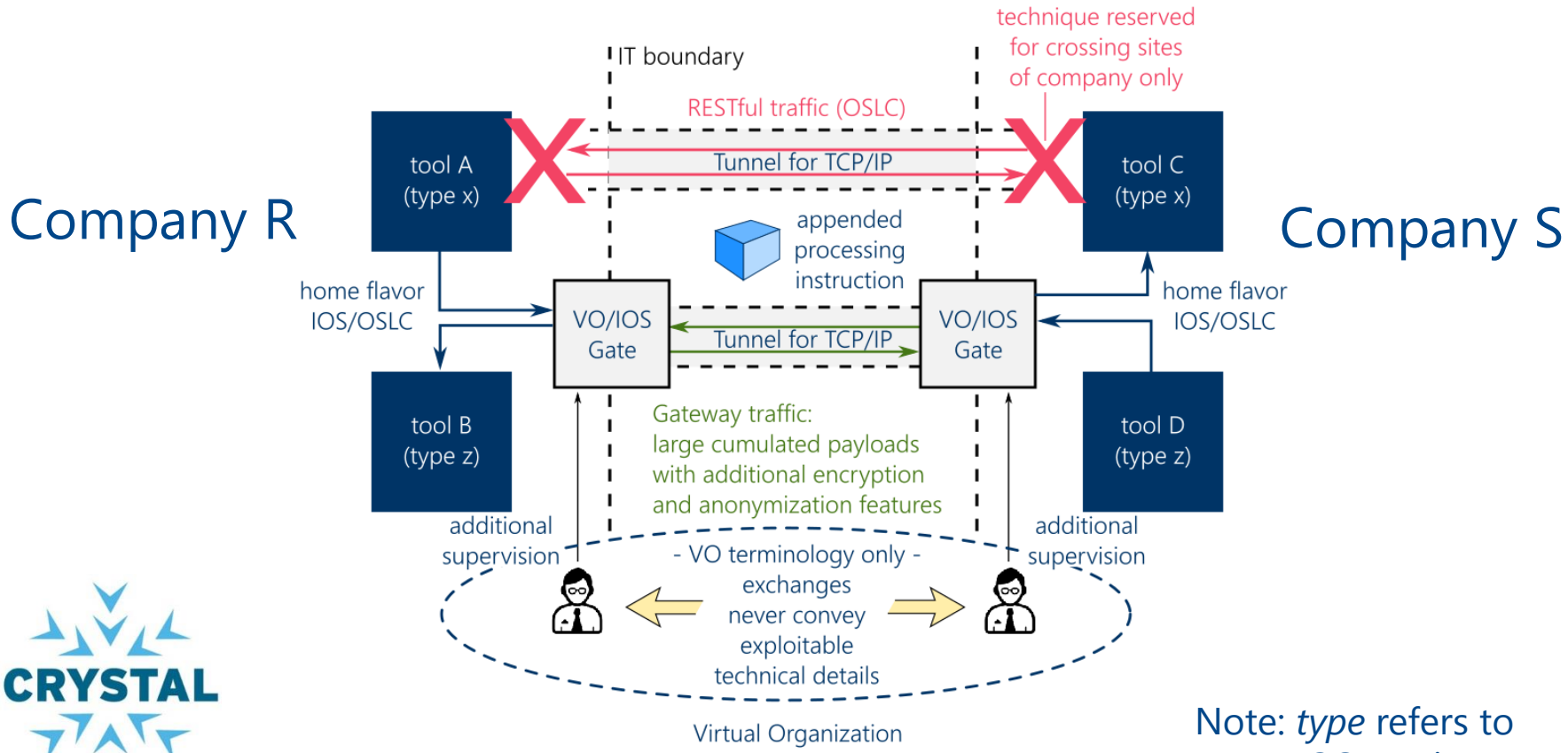


Example: problematic authentication with OSLC



Quick Help with the OSLC/IOS Gateway

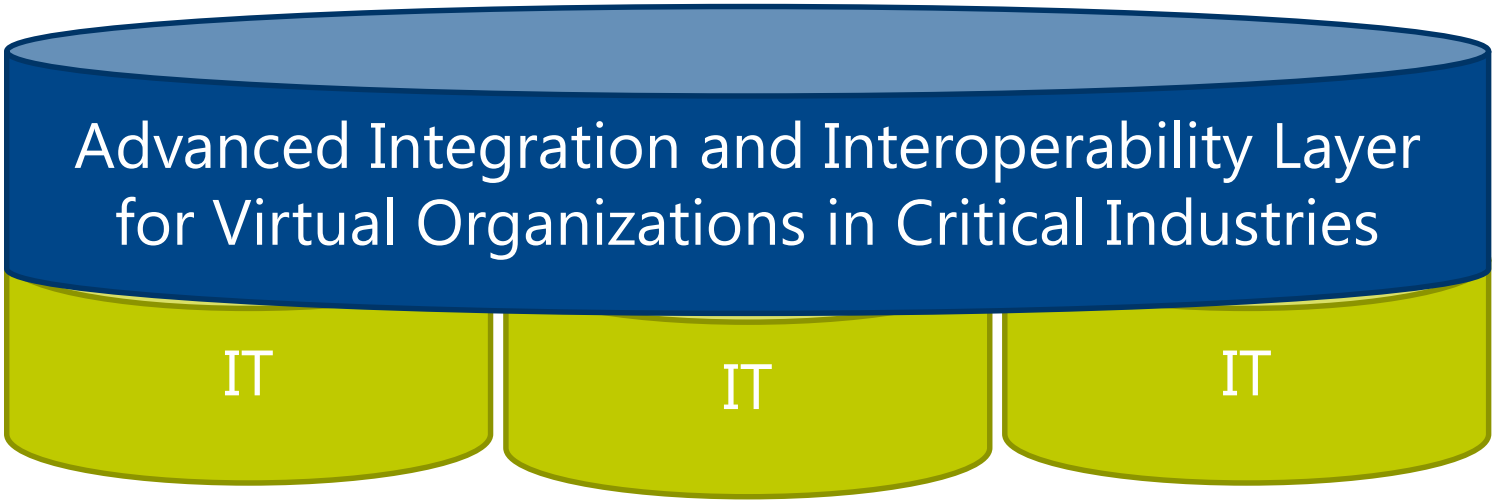
- Design of OSLC/IOS is not going to quickly change
- CRYSTAL WG on ReqIF and Security considers VO/IOS Gate



Note: *type* refers to some IOS service type

What could be done in the long run?

Introduce a new kind of interoperability layer
that takes care of transport, transformation and VO security



enabler technology required but
OSLC is not designed for this

M.Sc. Aleksander Lodwich
Software Engineer at ITK Engineering AG
aleksander.lodwich@itk-engineering.de
+49 711 933157-393

Thank you for your attention!