

Beta-Plattform

The National Beta Platform,
Repository and Infrastructure for
Sustainable Research Environments

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Web-based platform

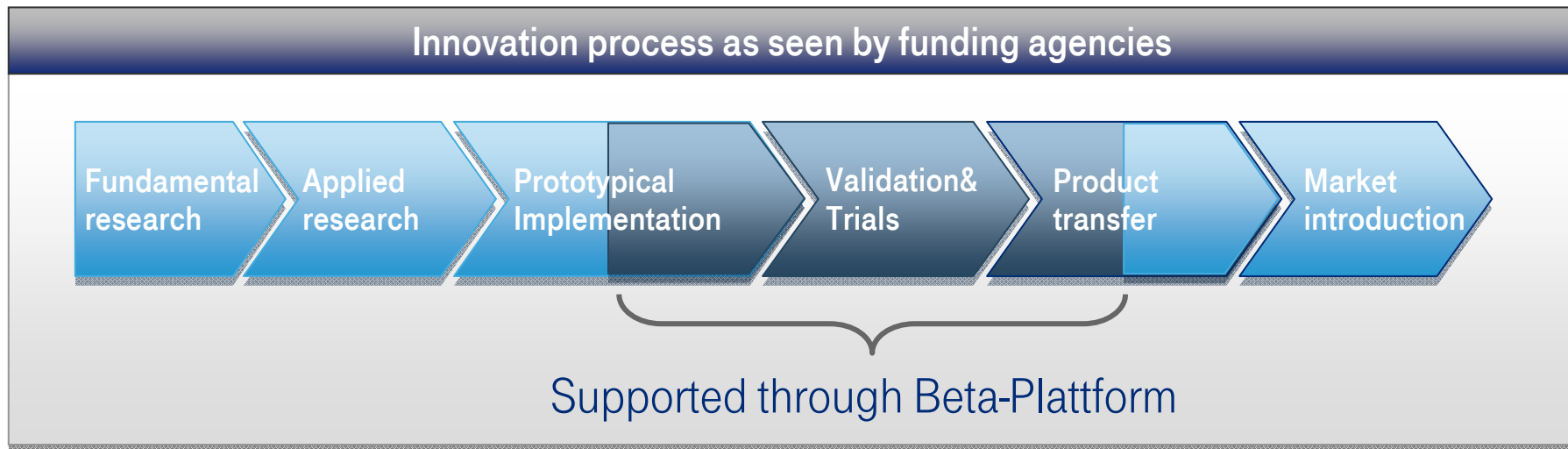
Introduction

Goal: Keep research results available after project ends

- Software + hardware repository for
 - Demonstrators
 - Software components
 - specialized hard- and software environments (e.g., IMS)
- Opportunity for students, developers, companies to connect
- Leveraging creativity potential for the whole ecosystem

The business model is key for continued operation

Research process in ICT



Prototypical implementations are extremely important for the continuity of the research and innovation process

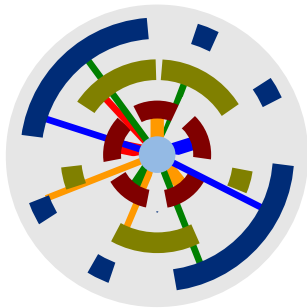
Validation of results and evaluation of prototypical implementations is done in environments close to reality.

Beta Platform – one piece of the puzzle.*

Creating an open developer network to improve access, reach, and efficiency in service development.

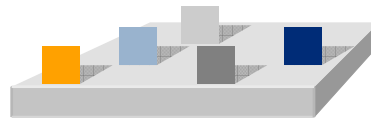
Broaden competence base for IP-ICT world, increase service yield through:

1 Access



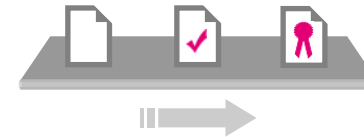
- To a trusted “open engineering network”.
- To specialized testbeds and developer environments.

2 Reach



- By a modular technology repository.
- Through the expert-community for early results.

3 Efficiency

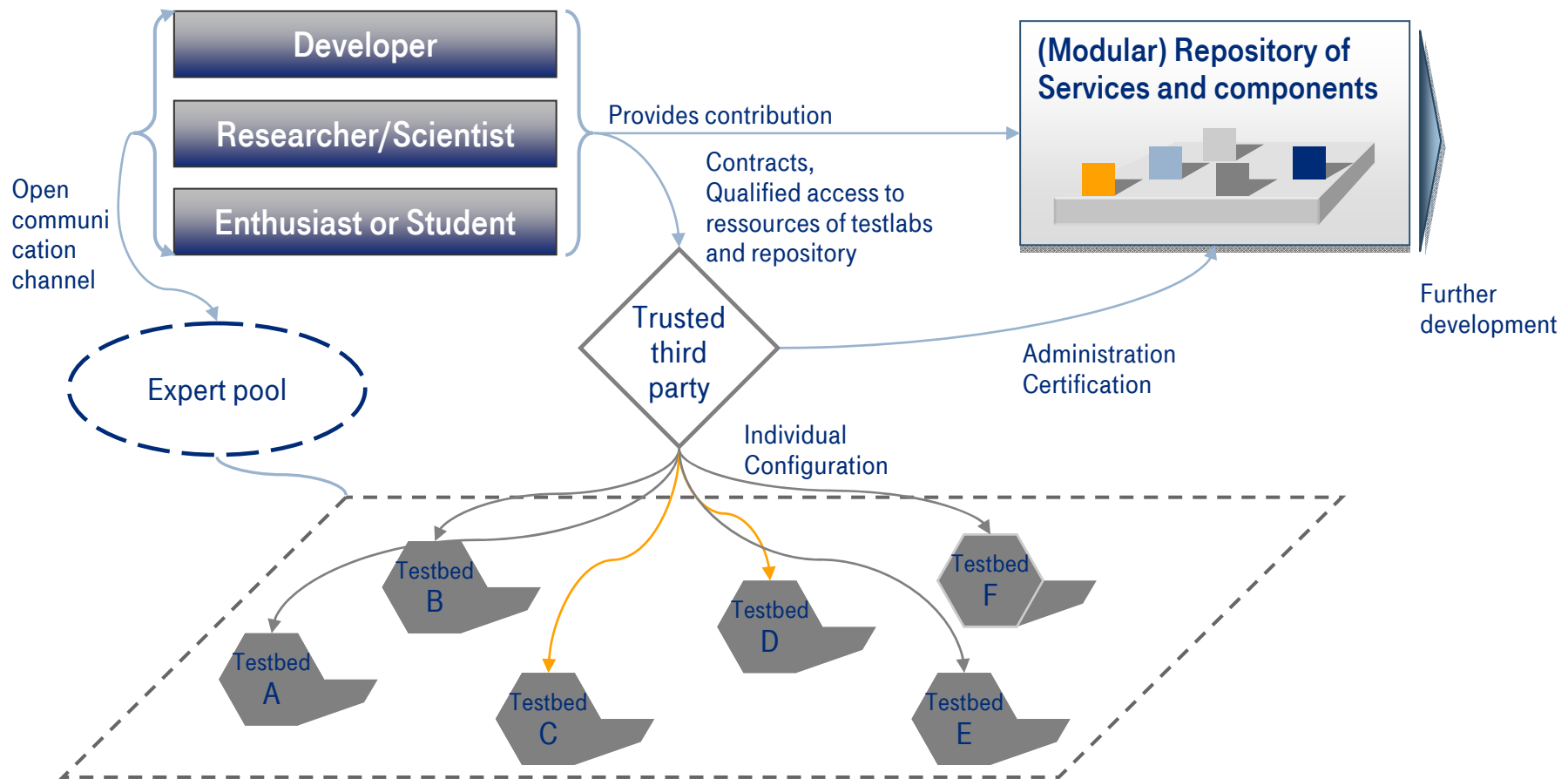


- Avoid double development.
- Sustainable results and reusability.
- Conformance to previously defined (common) criteria.

*Among others like: venture capital, entrepreneurial spirit, courage, deregulation of legal system, tax system, etc.

Federating testbeds

Open environment based on „fair use“.



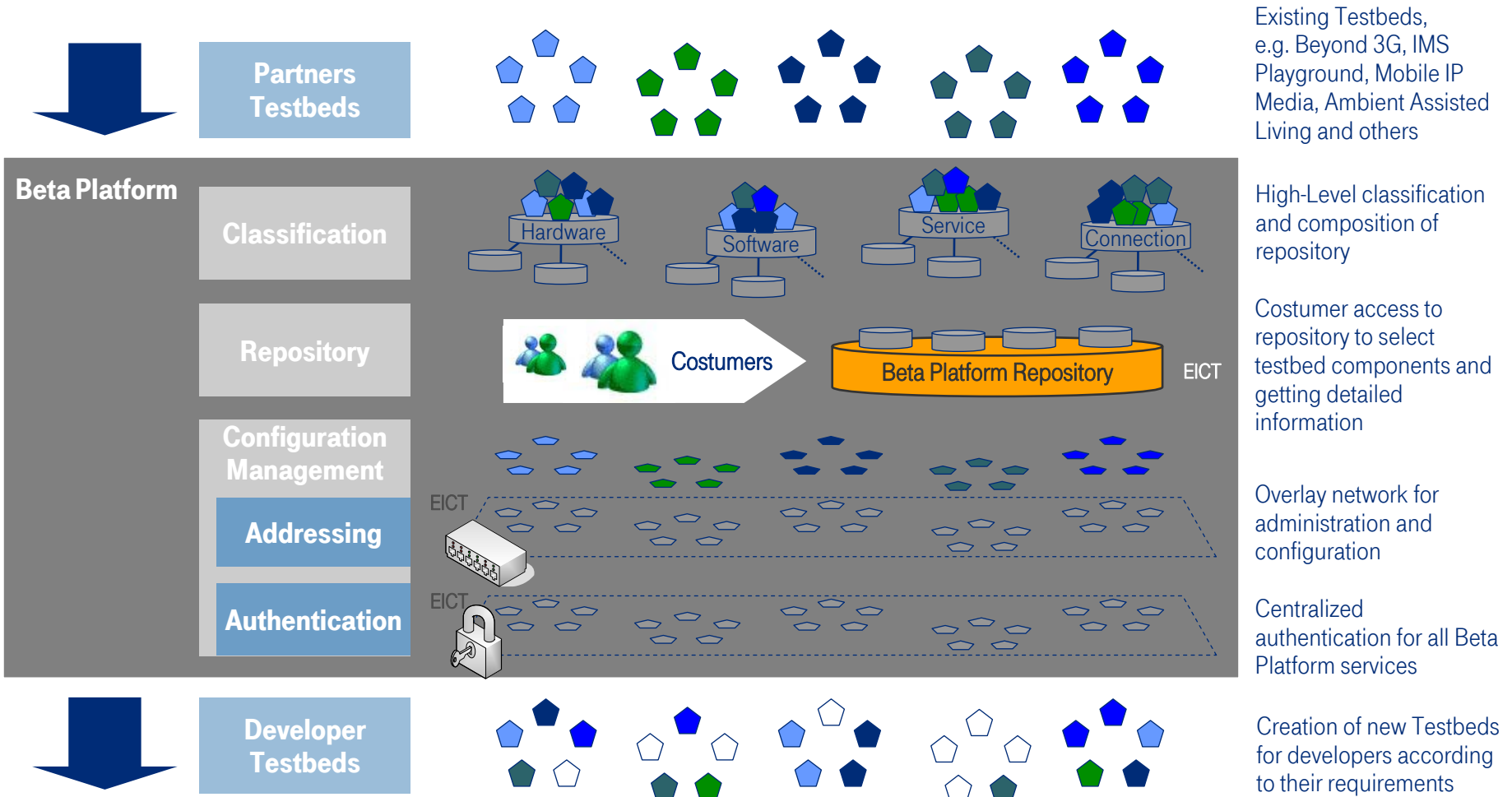
Beta Platform

We expect benefit for all members.

Developers	<ul style="list-style-type: none">▪ Access to testbed-infrastructure and expert pools▪ .Awareness of cutting edge developments and results of research projects▪ Reuse, avoidance of double work▪ Community and social network for future joint developments (open innovation)
Testbeds	<ul style="list-style-type: none">▪ Additional income per use, higher efficiency of own infrastructure▪ Publication of developments by means of repositories and knowledge exchange▪ Results and infrastructure will be available to the communiy also after project runtime
Universities/ Scientists	<ul style="list-style-type: none">▪ Publication of developments by means of repositories and knowledge exchange.▪ Access to highly specialized equipment (e.g. LTE testbed, base stations, etc.)▪ Proof-of-Concept for scientific results beyond simulations.
Industry	<ul style="list-style-type: none">▪ Enrichment of the own pool of developers/scientists.▪ Early feedback about the basic quality of developments▪ Telcos: the oportunity to leverage community for net-centric web services and web development & additional marketing channel for own results▪ Faster service development, Lower investments, shared risk
Public Funding	<ul style="list-style-type: none">▪ No double funding of project related infrastructure▪ Evaluation of research results at low costs▪ Results and infrastructure will be available to the communiy also after project runtime / sustainability▪ Better leverage of commercialization opportunities

Beta Platform.

Interaction of Beta Platform subprojects.



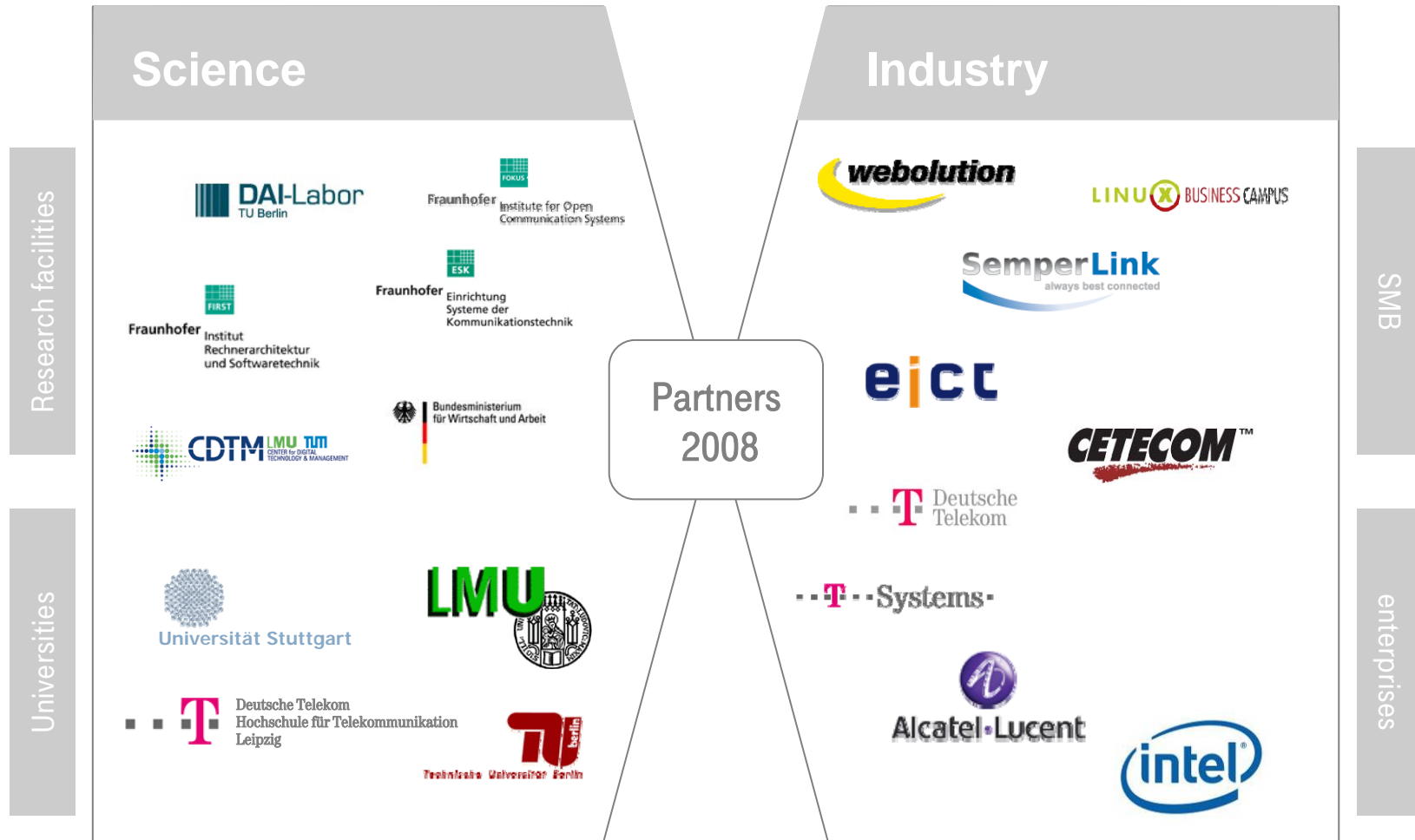
Beta Platform.

Subprojects and work areas.

Legal Framework	<p>Legal framework (Beta Foundation e.V.), model contracts</p> <p>Key players and founding partners: service providers, equipment manufacturers, system integrators, SMEs, and research institutions</p>
Addressing	<p>IP address schema</p> <p>Overlay network for the Beta Platform for administration and configuration purposes</p> <p>Central administration of addresses by the operations unit of the Beta Foundation</p>
Classification	<p>Classification of testbed infrastructures, hardware and software components, APIs and enablers</p> <p>Stepwise extension of the repository</p>
Authentication	<p>Centralized authentication for all Beta Platform services</p> <p>Access control for Beta Platform services (website, knowledge management, etc.)</p> <p>Access control for development environments and testbed infrastructures</p>
Configuration Management (CM)	<p>Local CM for testbed infrastructures, global CM for the Beta Platform</p> <p>Monitoring, auditing, version control and archival storage for configurations</p> <p>Support for automatic rollout and rollback mechanisms</p>
Beta Platform Services	<p>Web portal, collaboration, know how aggregation and management, mailing lists, repository, etc.</p>

Supporting partners as of 2008.

Universities, research facilities, SMB, enterprises.



Beta Platform.

Federation of testbeds – trusted third party.

- Concept and realization of initial infrastructure
- Joint project of T-Labs, TUB, EICT

- Business model, contracts, partner recruiting,
- Further technical development through EU project PII
- Financed EU + EICT

- Regular operation, continuous development
- EU funding + Beta Foundation create stable financial basis



Beta-Plattform.

Classification.

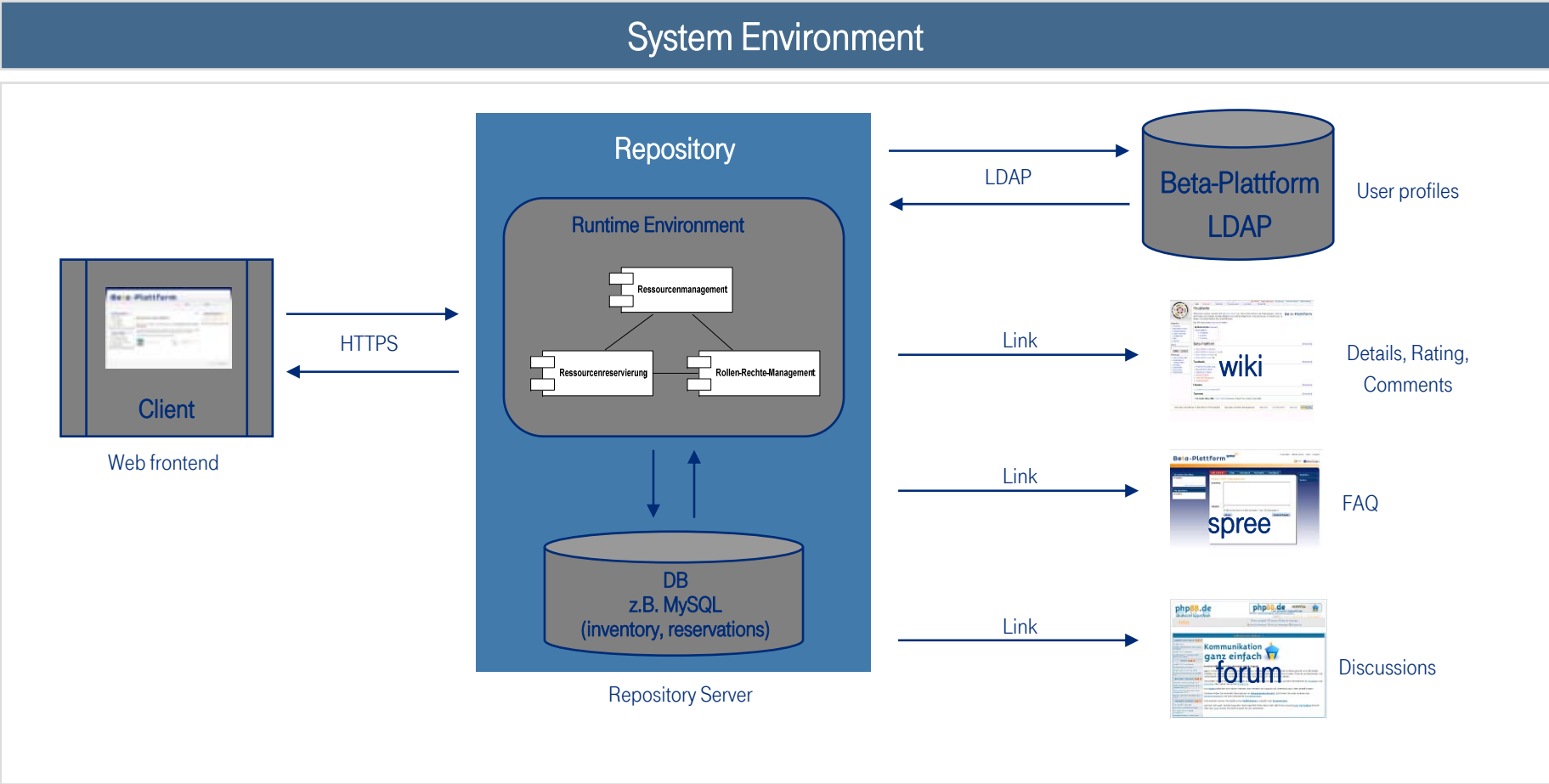
- Type
- Manufacturer
- Model
- Description
- OS
- Image/ OS Details
- Network Access Domain
- Testbed
- Manufacture Date
- Owner
- Commercial
- URL

mTOP Wiki	name Type	manufacturer Manufacturer	productName Model	additionalInfo Description	namingOsRef OS
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Type	Manufacturer	Model	Description	OS
Server	Sun Microsystems	SunFire V120	DNS	Solaris
Server	Sun Microsystems	SunFire V120	Cisco Mobile Exchange (SESM) (Sesm 3.1.9)	Solaris
Server	Sun Microsystems	SunFire V120	Cisco Mobile Exchange (Cisco Access Router) (CAR 3.1R4 + HLR Proxy)	Solaris
Server	Sun Microsystems	SunFire V120	Sonus	Solaris
Server	Sun Microsystems	Netra 20	SIP Express Router	Solaris
Server	Sun Microsystems	Netra 20	Oracle DB for Sonus	Solaris
Server	Sun Microsystems	Sun Fire V65x	Router IPv4 / IPv6	Linux
Server	Sun Microsystems	Sun Fire V65x	Router IPv4 / IPv6, Tunnel, VPN	Linux
Server	Sun Microsystems	Sun Fire V65x	MIPv6 Home Agent (MIPL)	Linux
Server	Sun Microsystems	Sun Fire V65x	Router IPv4 / IPv6, Measurements	Linux
Server	Sun Microsystems	Sun Fire V480	Several Application Servers, incl. Zones	Solaris
Server	Sun Microsystems	Sun Fire V480	Application Server	Solaris
Server	Sun Microsystems	Sun Fire V60x	MySQL DB	Linux
Server	Sun Microsystems	Sun Fire V60x	MAIL, EXIM, BSCW	Linux
Server	Sun Microsystems	Sun Fire V60x	Applicatoin Server, Demonstrator, Webserver, SIP Servlets Application Server	Linux
Server	Sun Microsystems	Sun Fire V60x	DIAMETER Server	Linux
Server	Sun Microsystems	Sun Fire V60x	SIP Proxy (S-CSCF)	Linux
Server	Sun Microsystems	Sun Fire V60x	Mobile IPv6 Home Agent (LIVSIX)	Linux
Server	Sun Microsystems	Sun Fire V60x	DIAMETER Server	Linux
Server	Sun Microsystems	Sun Fire V60x	Media Server Components (Media Ressource Function)	Linux
Server	Sun Microsystems	Sun Fire V880	Applicatoin Server, DB Server, XDMS Server (XML Document Management Server)	Solaris
Server	Sun Microsystems	Sun Blade 150	Admin console	Solaris
Server	Sun Microsystems	Sun Fire V20z	MIPv6 Home Agent (MIPL)	Linux
Server	Sun Microsystems	Sun Fire V20z	Jabber Server, Parlay X Server (Application Server)	Linux
Server	Sun Microsystems	Sun Fire V20z	Radius Server, Apache IPv6	Linux
Switch	Cisco Systems	Catalyst 3550	Switch	IOS
Router	Cisco Systems	Catalyst 6500	Router; Content Selection Gateway	IOS
VPN	Cisco Systems	Cisco VPN 3000 Concentrator	VPN Concentrator	Cisco
Server	Cisco Systems	Cisco MCS 7800	CallManager	Windows
Router	Cisco Systems	Cisco 2611	MIPv6 Home Agent (Cisco IOS)	IOS
Router	Cisco Systems	Cisco 2611	HLR Simulator (MSC, VLR)	IOS
Router	Cisco Systems	Cisco 2611	Internet Transfer Point (ITP) (IP-MAP/SS7)	IOS
Router	Cisco Systems	Cisco 2611	Access Zone Router	IOS
Router	Cisco Systems	Cisco 3640	MIPv4 Home Agent (Cisco IOS)	IOS
Router	Cisco Systems	Cisco 7200	Cisco Mobile Exchange (Service Selection Gateway)	IOS
Access Network	Cisco Systems	Cisco AIR AP 1220B-E-K9	Cisco Access Point, multiple SSIDs, one for EAP-SIM authentication	IOS

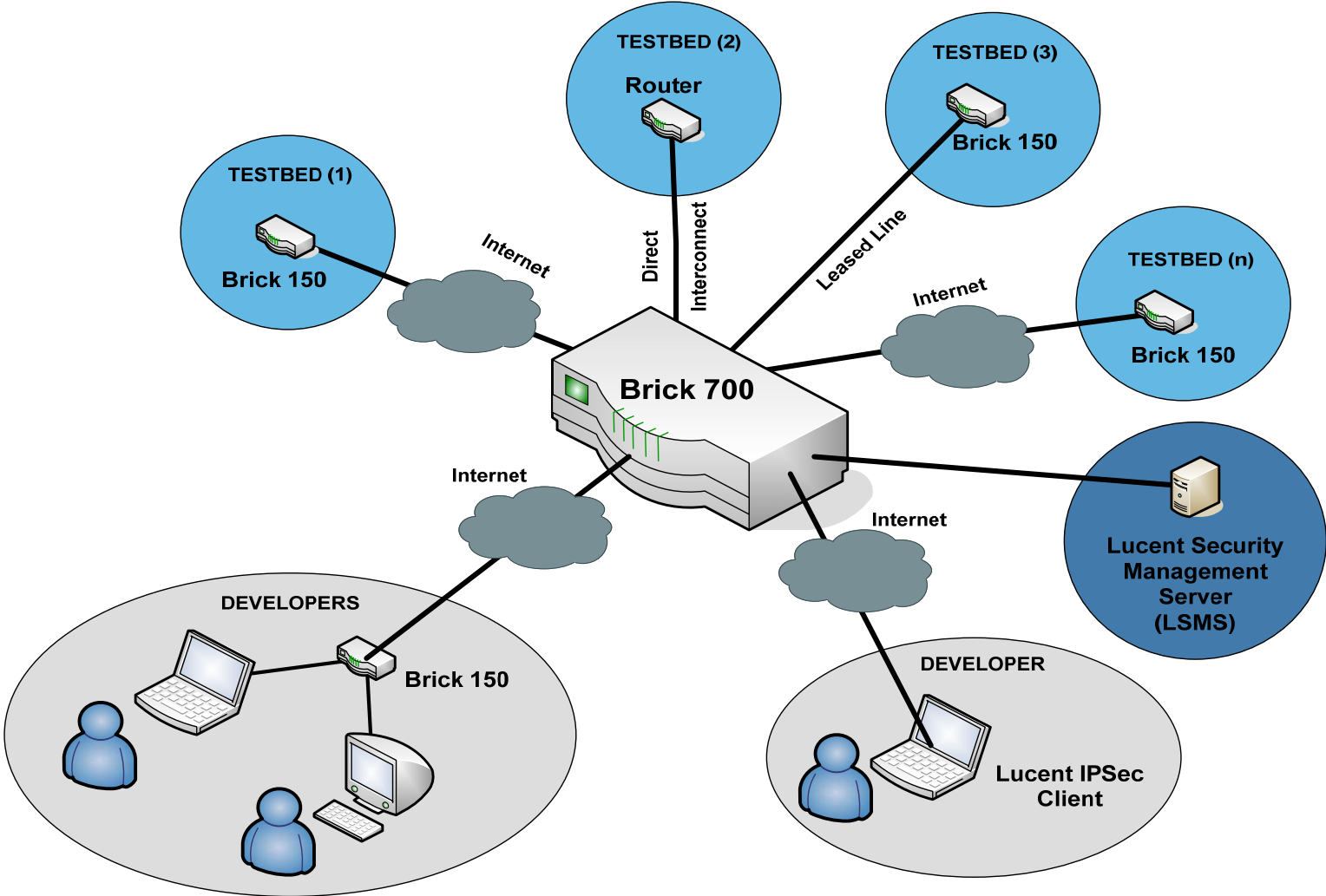
Beta-Plattform.

Repository.



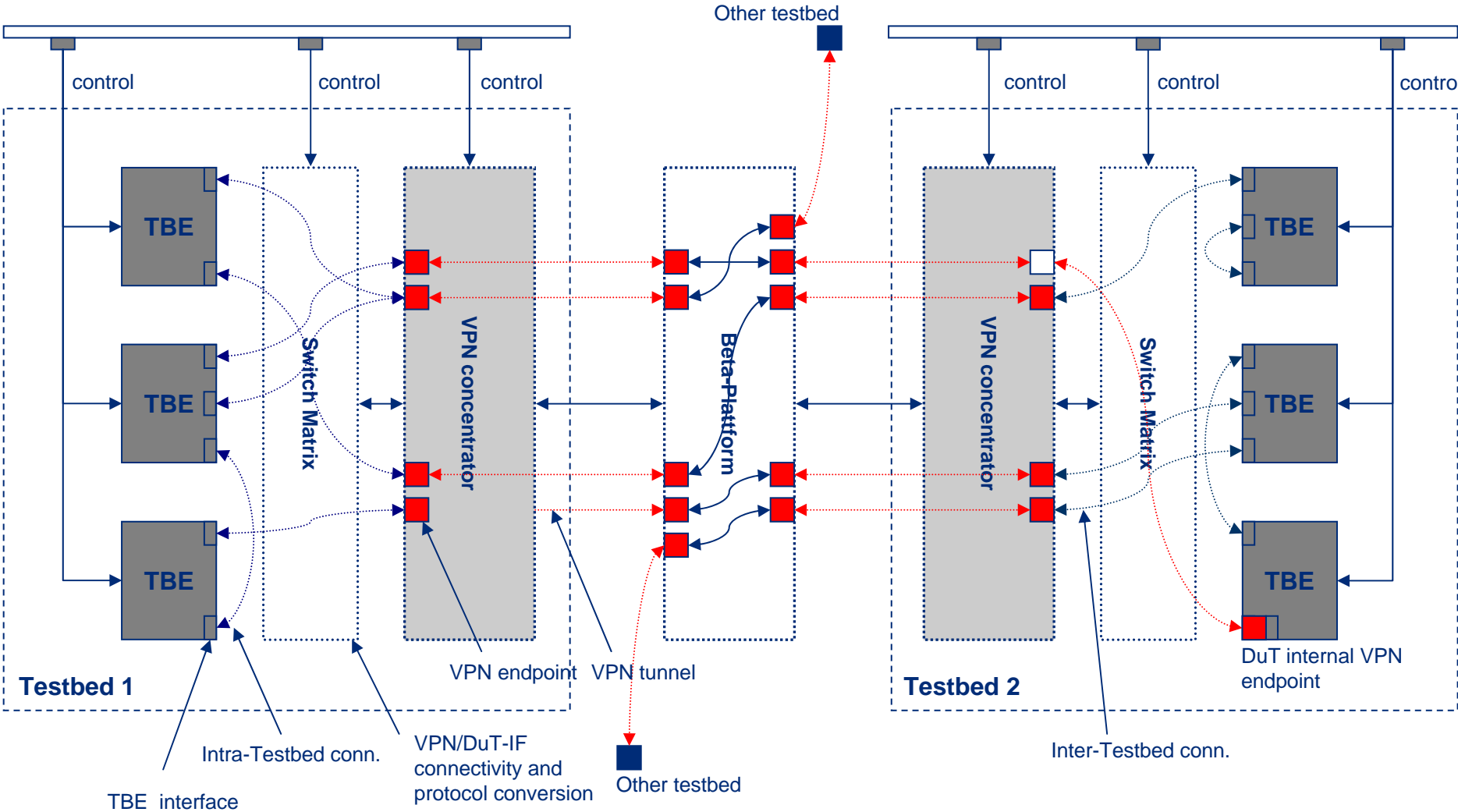
Beta-Plattform.

VPN-Concept.



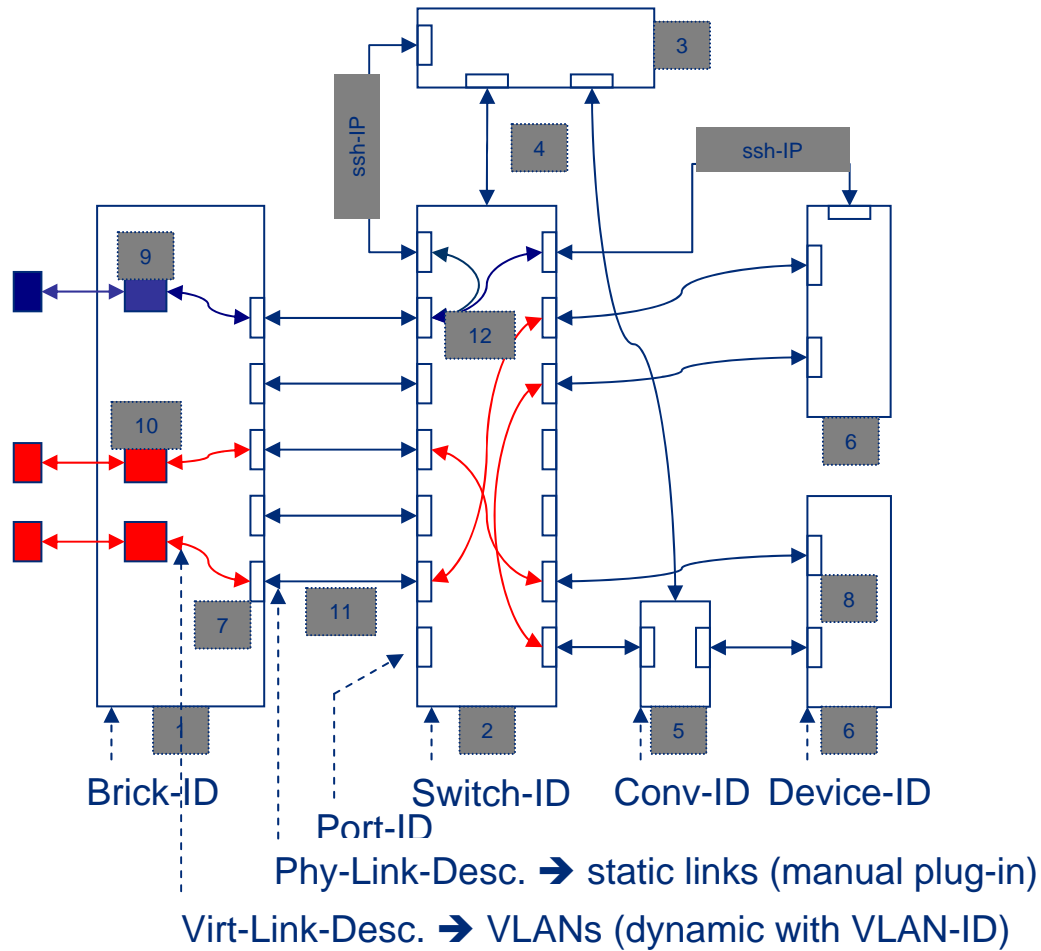
Beta-Plattform.

Connectivity Matrix.



Beta-Plattform.

Connectivity Matrix- Implementation.



Alcatel-Lucent Brick

L2 switch

Control PC

Serial console

Protocol converter

Testbed element / Component

Port

Exported Interface

VPN End point (Admin plane)

VPN End point (User plane)

Phys. connection (Kabel)

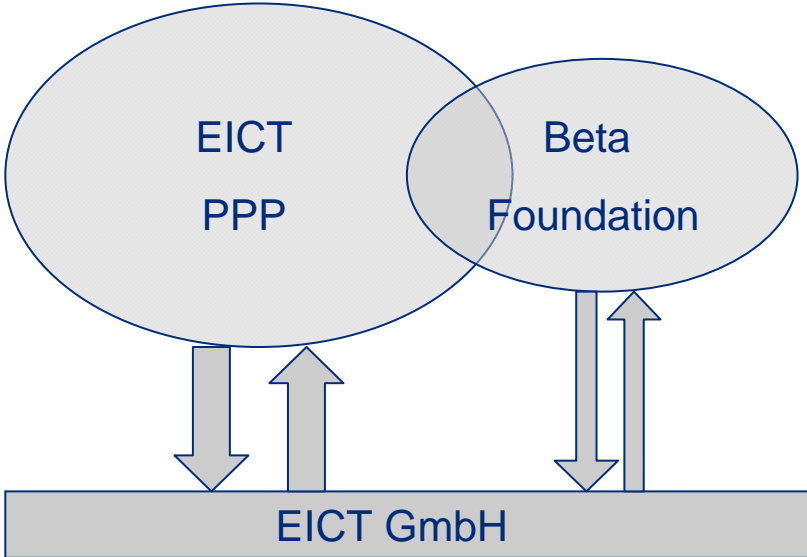
Virt. Connection (VLAN)

Beta Foundation.

An equivalent to Eclipse* for testbeds.

Program similar to EICT partner program – as autonomous as possible

- Not-for-profit organization
- Membership fees (proportional to yearly revenue of industrial partners)
- Beta Foundation Board decides on development of the platform
- Sub-contract for the operation of the hardware (to EICT GmbH)
- Separate budget exclusively for operation of Beta Platform



* Eclipse: THE development environment for software, originally created by IBM, now huge open source project, free core, partially commercial plug-ins

Beta-Plattform -- international context.
Beta-Plattform is *German Cluster* in PII.

