

Managing the Digital Thread Across Global Deployments

Bruce Bookbinder, Product Marketing, Aras

GLOBAL PRODUCT DATA
INTEROPERABILITY
S U M M I T
2019



Bruce Bookbinder, Aras Corporation

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- **Aras Corporation, Product Marketing Manager**
 - **GE Power, Enterprise PLM Strategy, Master Data Management Leader**
 - **Avon Products, IT Director; Product Development Applications and R & D**
 - **Reader's Digest, Developer, DBA, Technical Trainer**
 - **Control Data Corporation, Developer**
 - **Kidder Peabody, Developer**
-
- **Pace University, MS Computer Science**
 - **State University of New York, BS Computer Science**



Focus on Digital Thread

72 percent of manufacturing companies surveyed by PwC said they are dramatically increasing their level of digitization and expect to be able to be ranked as digitally advanced by 2020, compared with just 33 percent today. These companies are committing US\$907 billion per year — about 5 percent of revenues — toward greater connectivity and smarter factories.

- Industrial Manufacturing Trends 2018-19, By Marian Mueller, Steve Eddy, Reinhard Geissbauer, Barry Jaruzelski





Scope of Digital Transformations

70 percent of respondents in a 2019 McKinsey survey said the scope of their organizations' transformation efforts were “Multiple business units and/or functions” or “Enterprise-wide”.

Five moves to make during a digital transformation - McKinsey Digital



What Benefits Are Companies Looking For?

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Productivity gains:

Deliver on-time product launches

The ability to rapidly respond to changing customer demands:

Improve product quality and support

Market expansion:

Support new markets, new service business models, create new product offerings

Development of a feedback loop for Next Generation Products:

Lay the foundation for next generation product development. Configuration and operating information can be shared backwards in the lifecycle to enable improved product designs, manufacturing processes and quality tests

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AEROSPACE



AUTOMOTIVE



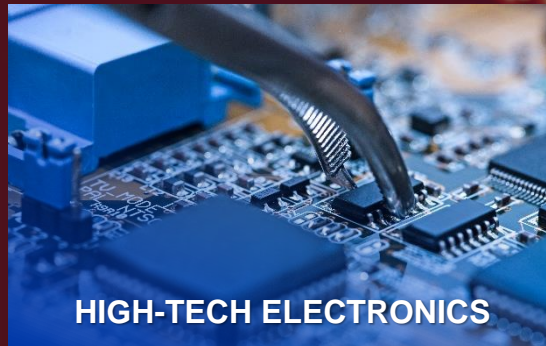
DEFENSE

**COMPLEX PRODUCTS
AND PROCESSES**

**MULTIPLE TEAMS
AND TOOLS**

**DISTRIBUTED GLOBAL
PRESENCE**

**LARGE SUPPLY
CHAINS**



HIGH-TECH ELECTRONICS



INDUSTRIAL MANUFACTURING

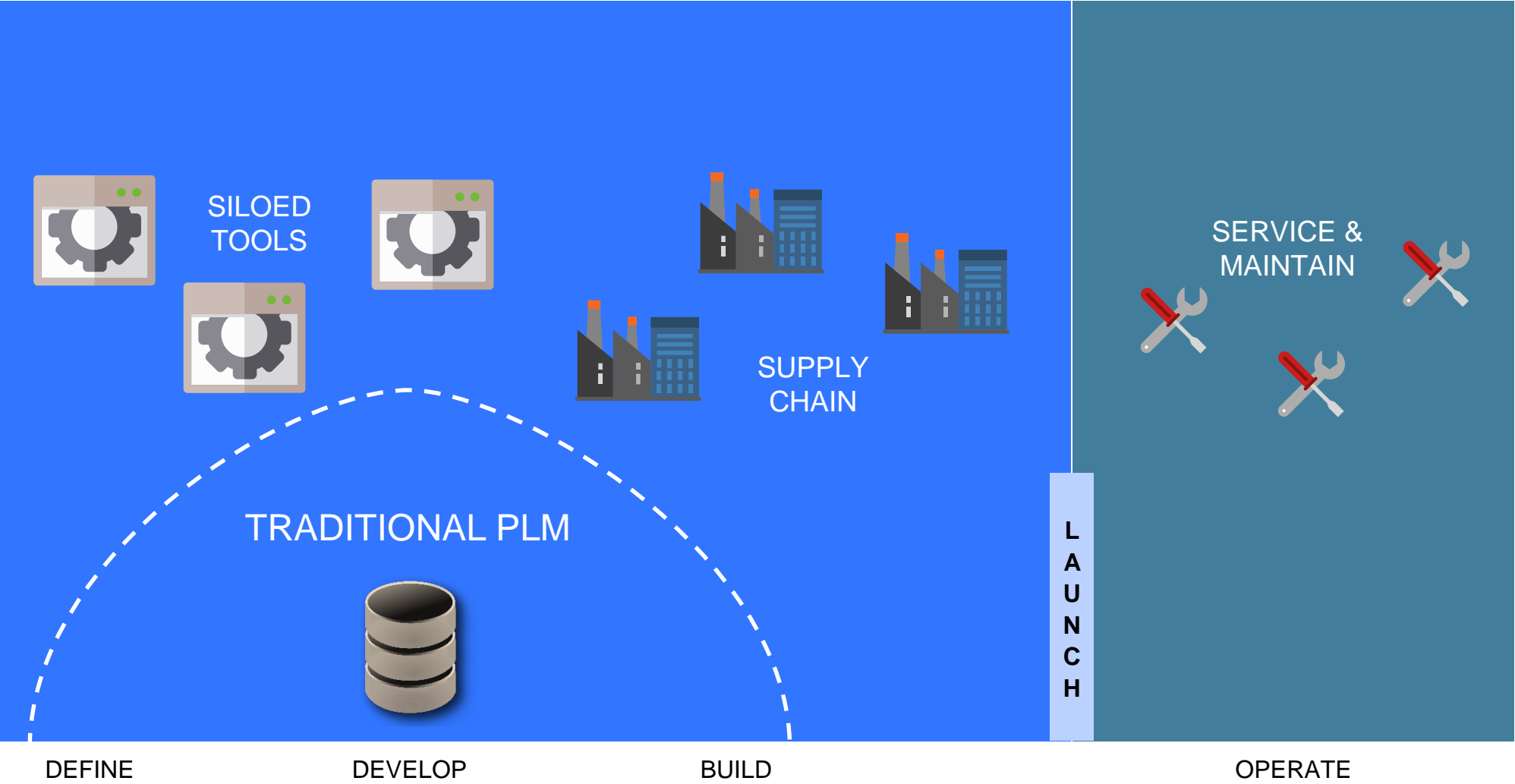


MEDICAL DEVICES

Traditional PLM

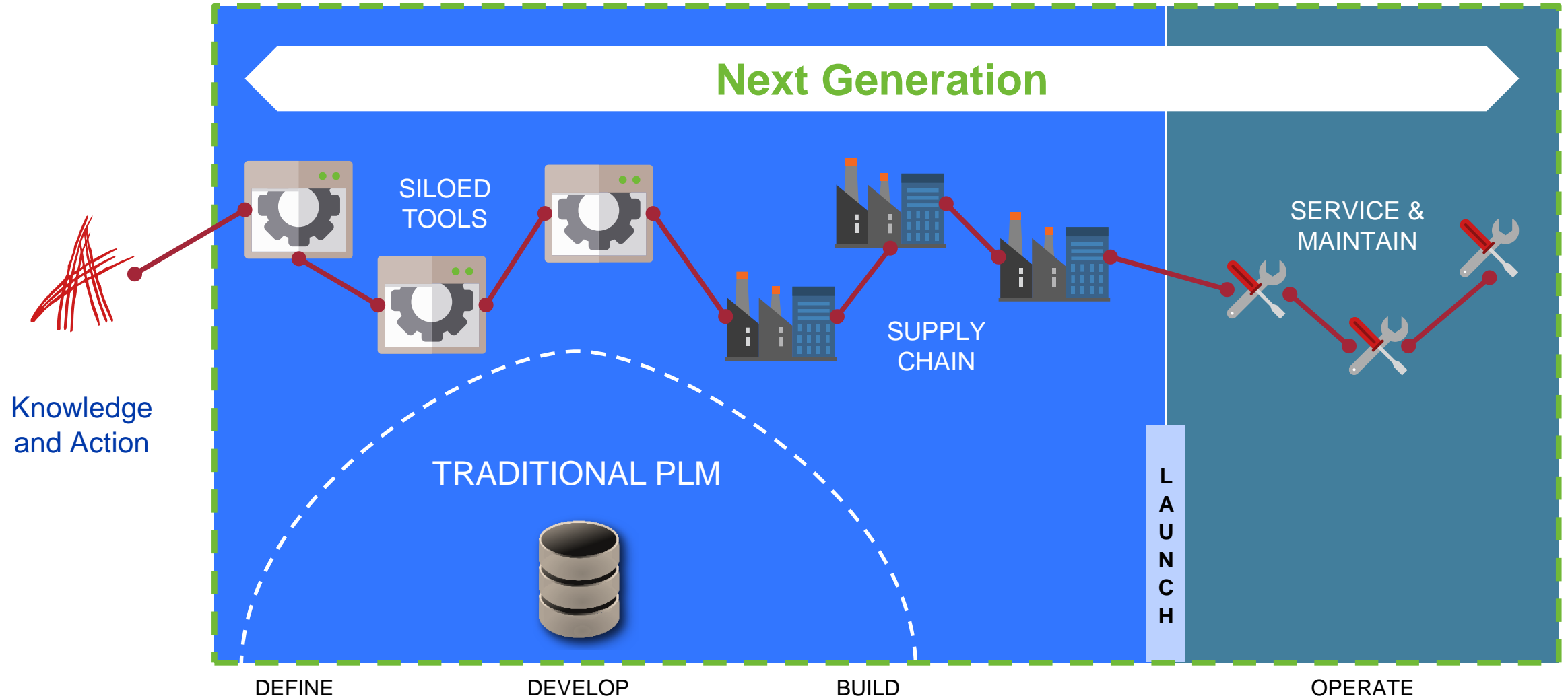
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Knowledge
and Action



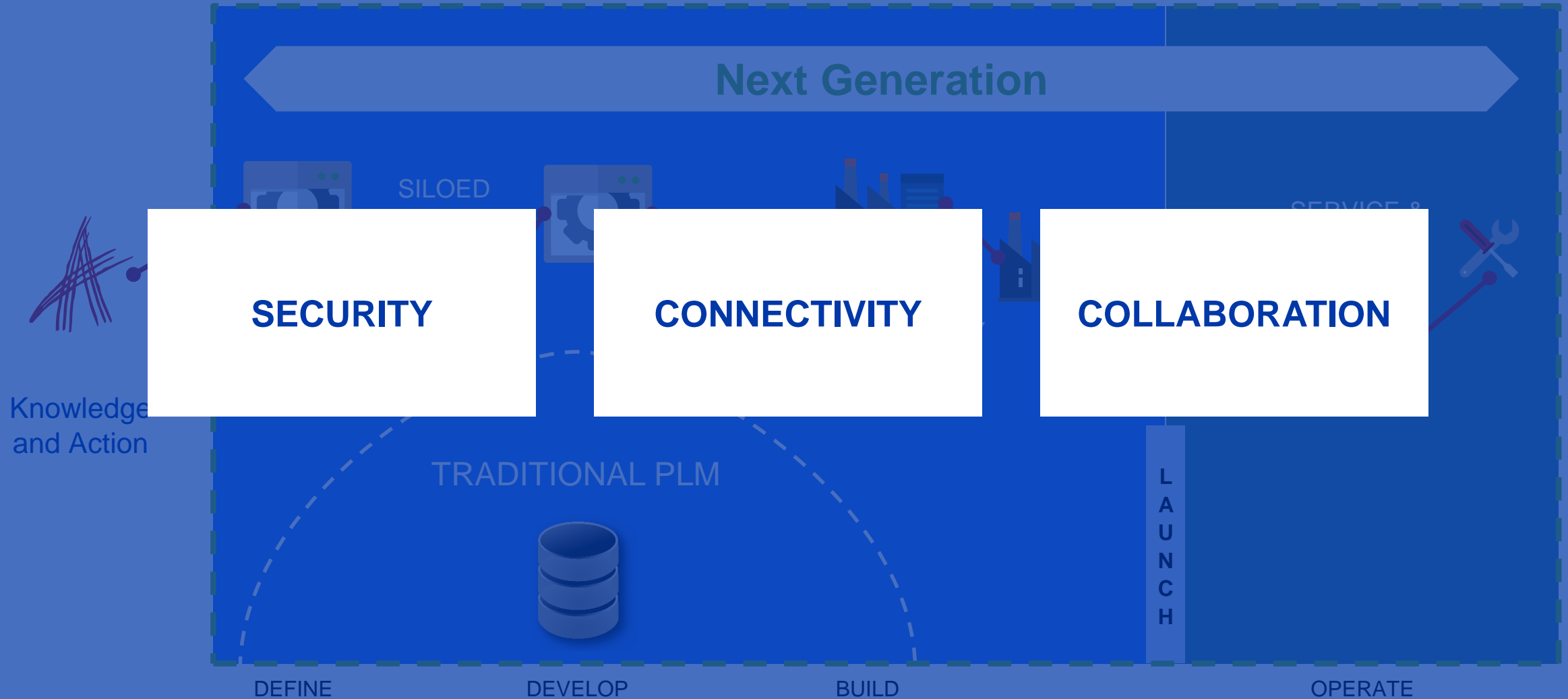
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SECURITY



Secure Access for Global Teams: a “Big Three” US Automotive OEM

- **5,000+ engineers: 1 platform**
- **Manage change throughout the lifecycle for all brands**
- **Unified teams across vehicle and propulsion**
- Complex access controls: Users, Programs, Permissions
- Integrate with legacy systems for CAD, PDM
- Complex search, large amounts of data



Secure Test Information Management: a Leading European Aerospace OEM

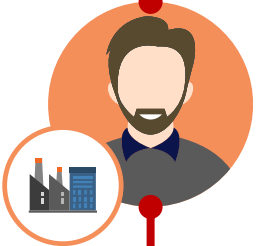
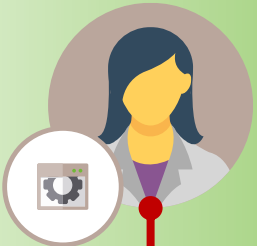
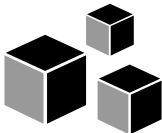
- **30,000 users: engineering, manufacturing, test, quality, and the supply chain**
- **First app: Web-based test information management**
- **Vision: deliver product definition beyond engineering**
- Manage test information across multiple teams and tools
- Provide visibility into test activities for key stakeholders
- Multi-site operation, including the extended enterprise

Security: Role-Based Permissions

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170 W
225 W



Security: MAC – Mandatory Access Control – Policy

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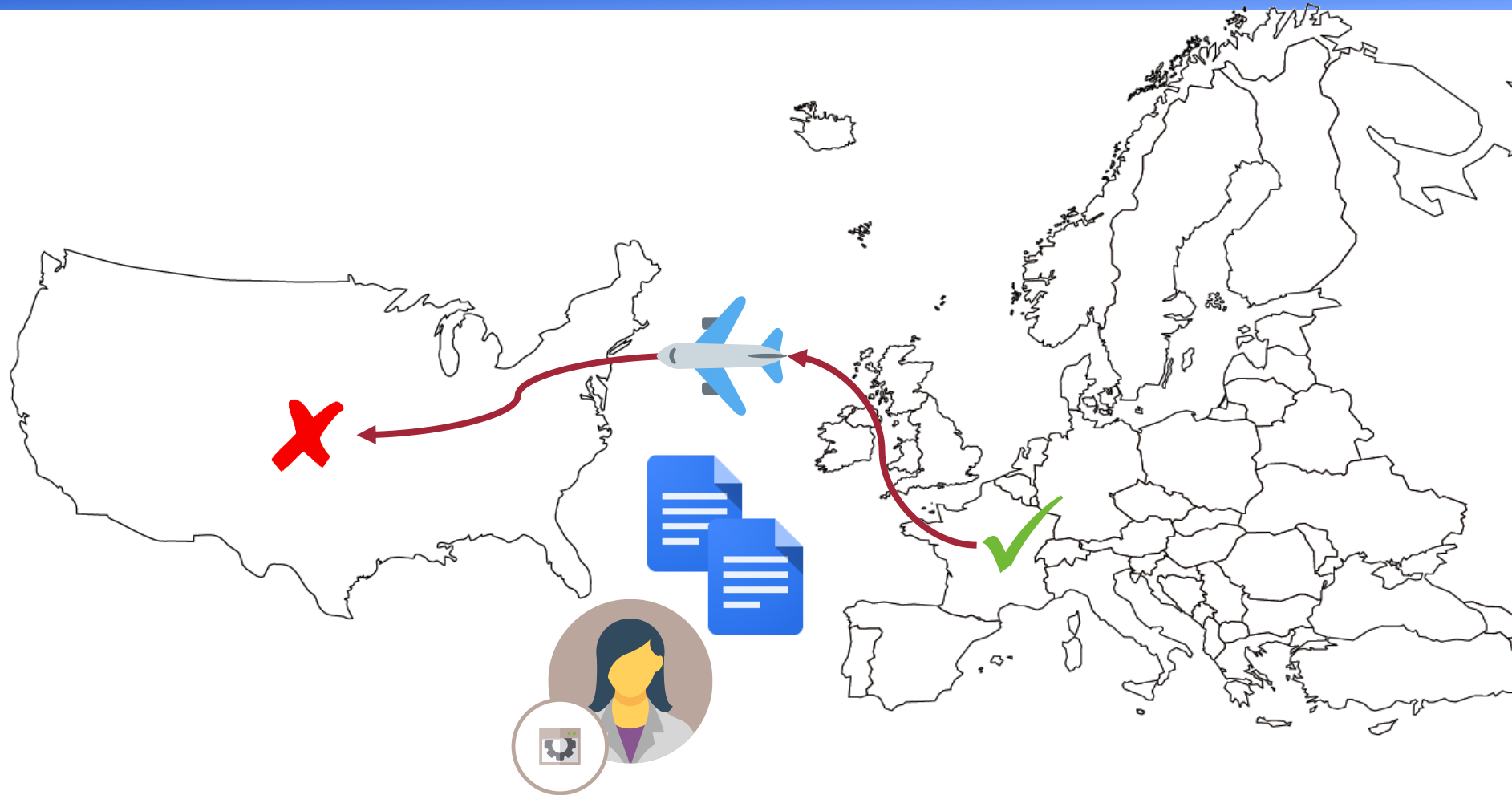
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Security: Environment-Based

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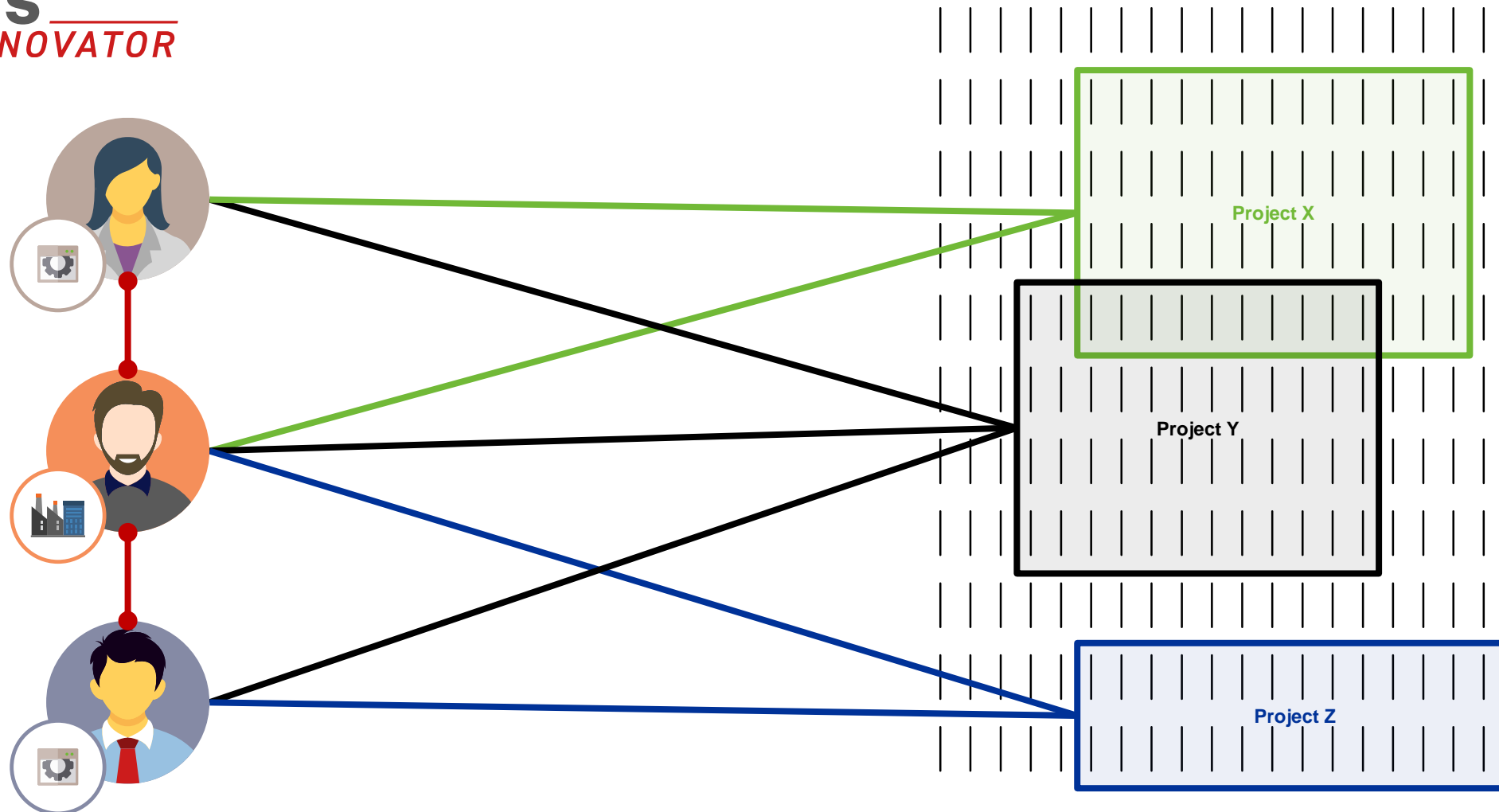
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Security: Project-Based (DAC – Domain Access Control)

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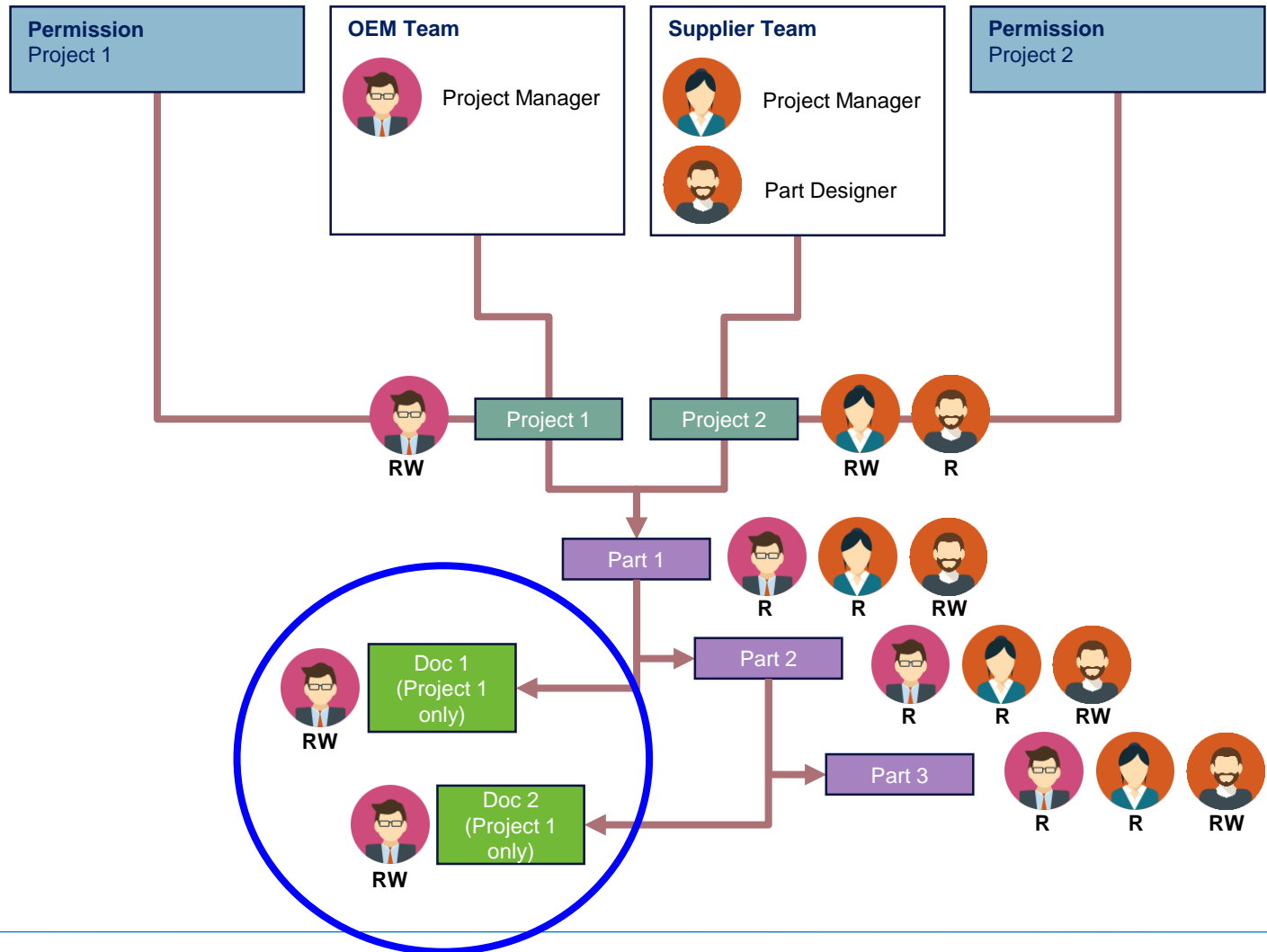


Security: Sophisticated Collaboration Scenarios

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- **Program+Role Permissions**

- **Permissions for Items which are part of a project with users having specific project roles**



CONNECTIVITY



Connected Systems for Quality: a \$2B+ US Medical Device Company

- **Fulfill requirements for design history file (DHF), document approvals, change control, and UDI**
- **Manage system proliferation to realize holistic quality**
- **Regulations across the US and China**
- Consolidate and manage product configuration baselines across multiple teams
- “PLM is an important part of the quality system process and solutions architecture”



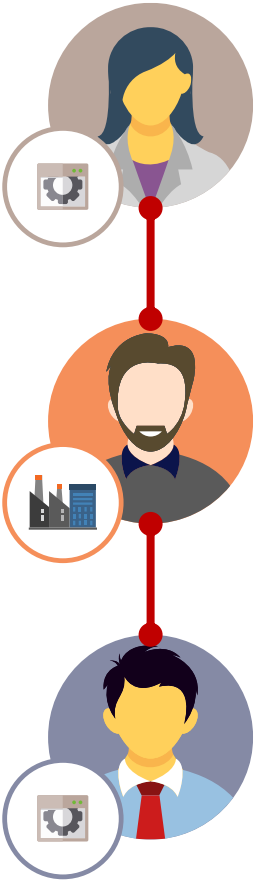
Connected PLM & QMS: a Japanese High-Tech & Medical Device Provider

- **One, centralized system for PLM and QMS**
- **Improved compliance and audit-readiness**
- **Expand access for enterprise teams**
- Customizable to meet legacy requirements and new ones
- CAPA, Design Control, Production / process control, Document Control
- Easily output one consolidated PDF for audit purposes

Connectivity: Shared User Interfaces

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Requirement Document: RD-00020 3D Printer Requirements - Google Chrome

File Edit Views Search Actions Reports Tools Help

RD-00020

- 1 Cost
- 1.1 Construction
- 1.2 Material
- 2 Operation
- 2.1 Fabrication
- 3 Software
- 3.1 Software
- 3.2 Software
- 4
- 6.1 Printing Technology
- 7 New req2

5. Appearance

5.1 Visual Appearance

Printer must be visually appealing

6. Technologies

6.1 Printing Technology

A number of additive manufacturing technologies are available. They differ in the way layers are deposited to create parts and in the materials that can be used. Some methods melt or soften material to produce the layers while others cure liquid materials using different sophisticated technologies.

Type	Technologies	Materials
Extrusion	Fused deposition modeling (FDM)	Thermoplastics
Granular	Direct metal laser sintering (DMLS)	Metal alloys
Laminated	Laminated object manufacturing (LOM)	Paper, metal foil
Light Polymerised	Stereolithography (SLA)	Photopolymer

7. New req2

Discussion

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Mike Miller Yesterday at 9:14 AM

at the time

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Aaron Lee Yesterday at 9:12 AM

Fixed in latest version

View

Like

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Innovator Admin Today at 7:28 AM

YES, this looks good

View

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Diane Prescott Yesterday at 10:18 AM

Is this document almost ready for review?

View

Like

Reply

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Aaron Lee Yesterday at 9:15 AM

This could use some additional detail

View

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Might want to mention that this is a high speed milling operation

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RD-00020 3D Printer Requirements

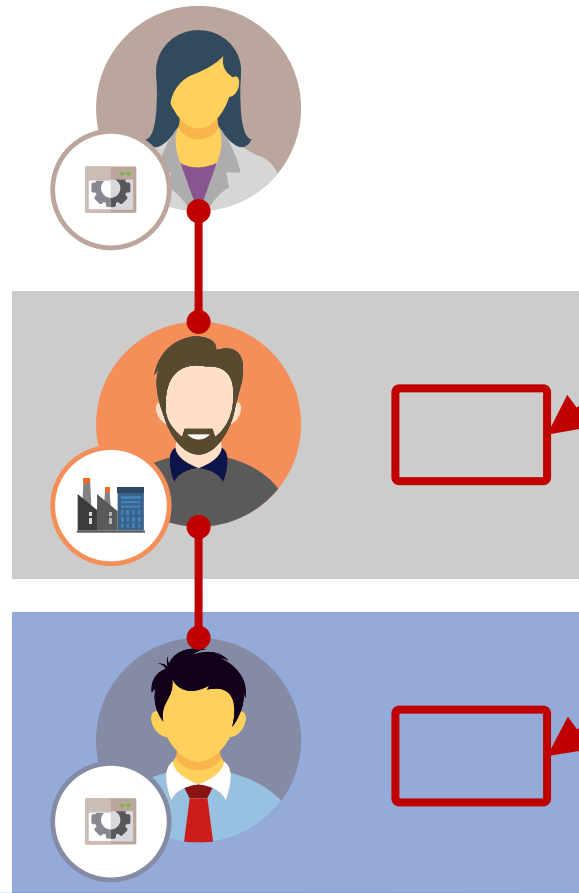
Screen 1-3 of 3, Page 1 of 1

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Connectivity: Federated Data

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 - 4.2 Negative health impact
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Items 1-3 of 3, Page 1 of 1

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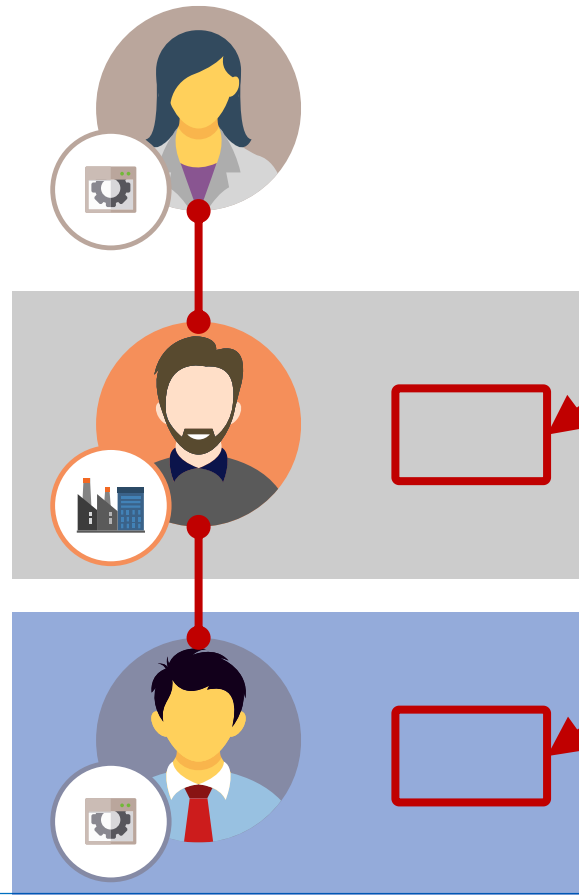
Aaron Lee Yesterday at 7:01 AM

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Connectivity: Document Snapshots

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Requirement Document - RD-00020 3D Printer Requirements - Google Chrome

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File Edit Views Search Actions Reports Tools Help

English

RD-00020

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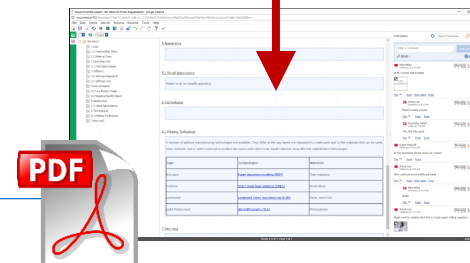
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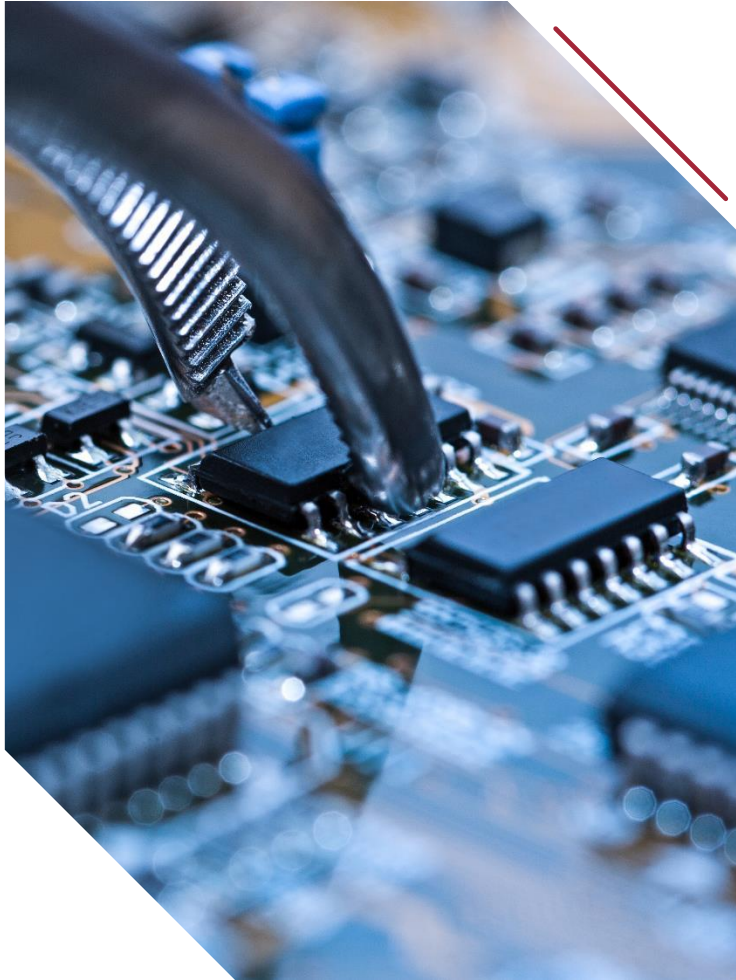


COLLABORATION



Secure Collaboration: a Top Japanese Heavy Industry / Aerospace OEM

- **1,000+ users across multiple companies**
- **Streamline both technical and business processes**
- **Share process innovations across industry groups**
- Support design, development, and production
- Implemented as platform-as-a-service for strategic agility
- Security features enhance business expansion overseas



Collaboration Advances On-Time Delivery: A Global High-Tech OEM

- **Meet growing demand for devices and cloud offerings**
- **Support hardware configuration and design**
- **Advance on-time design handoff to over 90%**
- Manage continuous change and improvements across hardware, tooling, and processes
- Involve more stakeholders in the change process
- Provide for effective communication across teams

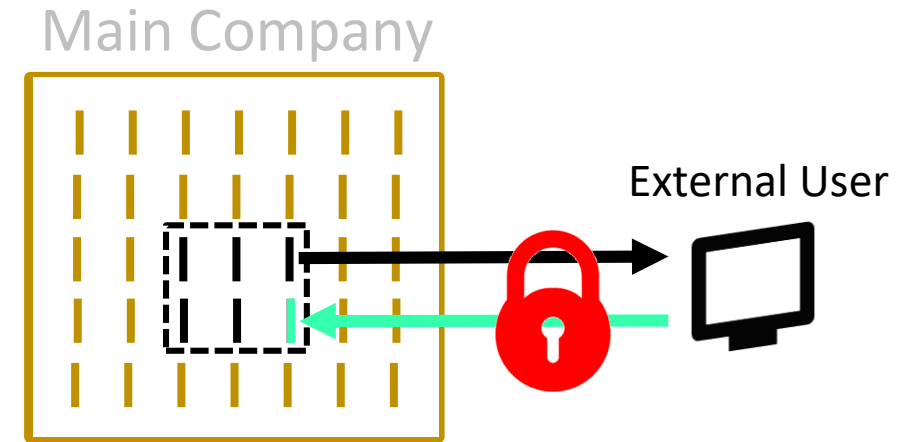
Collaboration: Secure Global Collaboration

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Secure Extended Enterprise Access

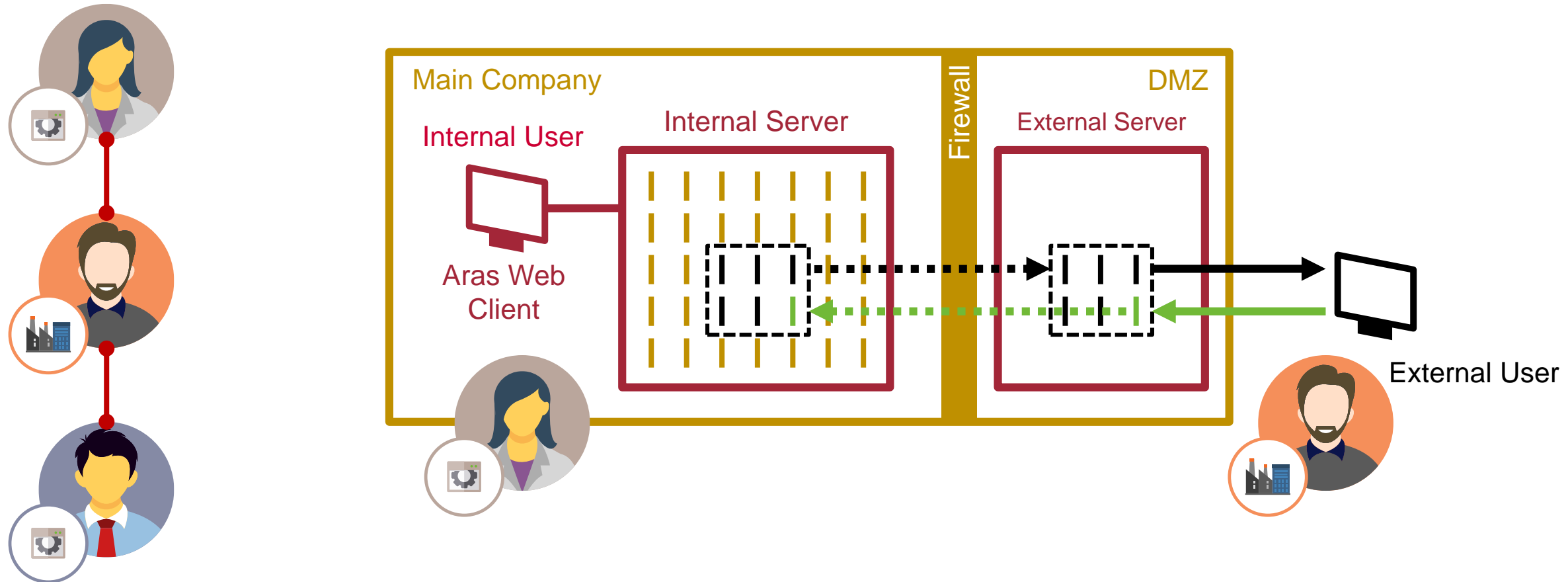
- Connects external partners to engineering data, while providing secure access control for IP
- Support multiple architectures for collaboration:
 - OEM + Design & Build Partners
 - System Suppliers / Design Suppliers
 - Build to Print Suppliers & Tooling Suppliers



Collaboration: Secure External Access – Data Synchronization

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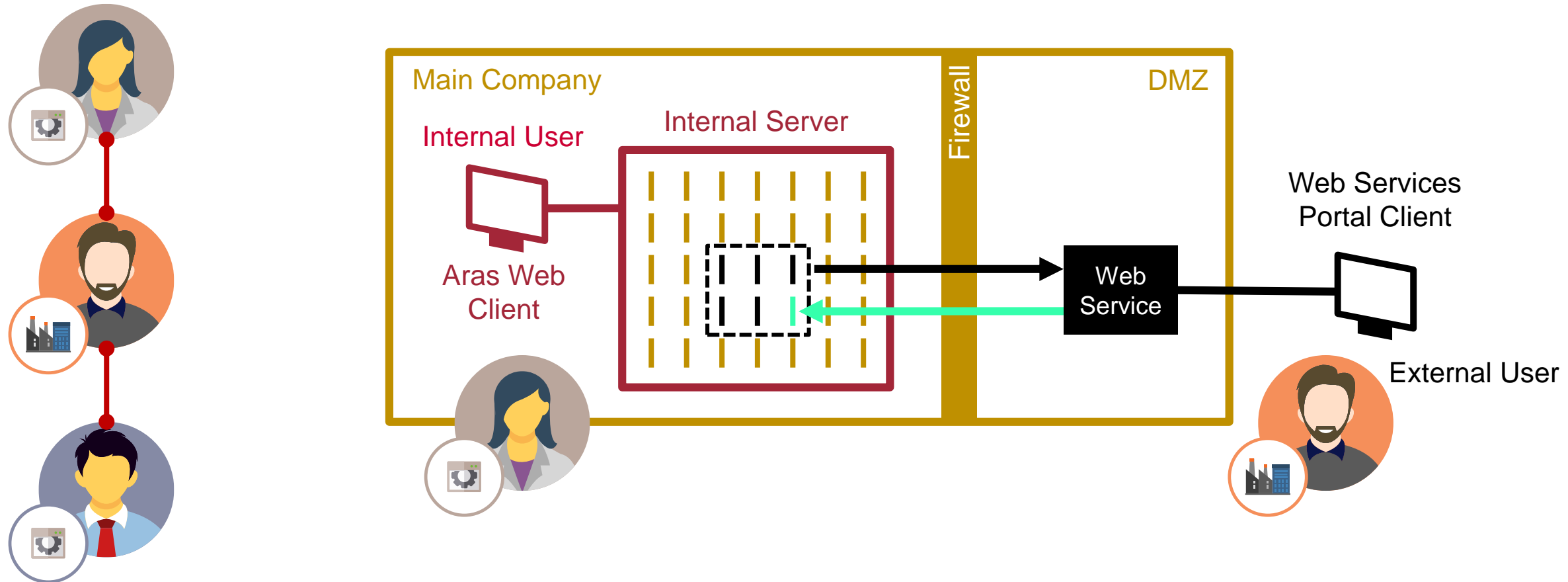
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Collaboration: Secure External Access – Web Services

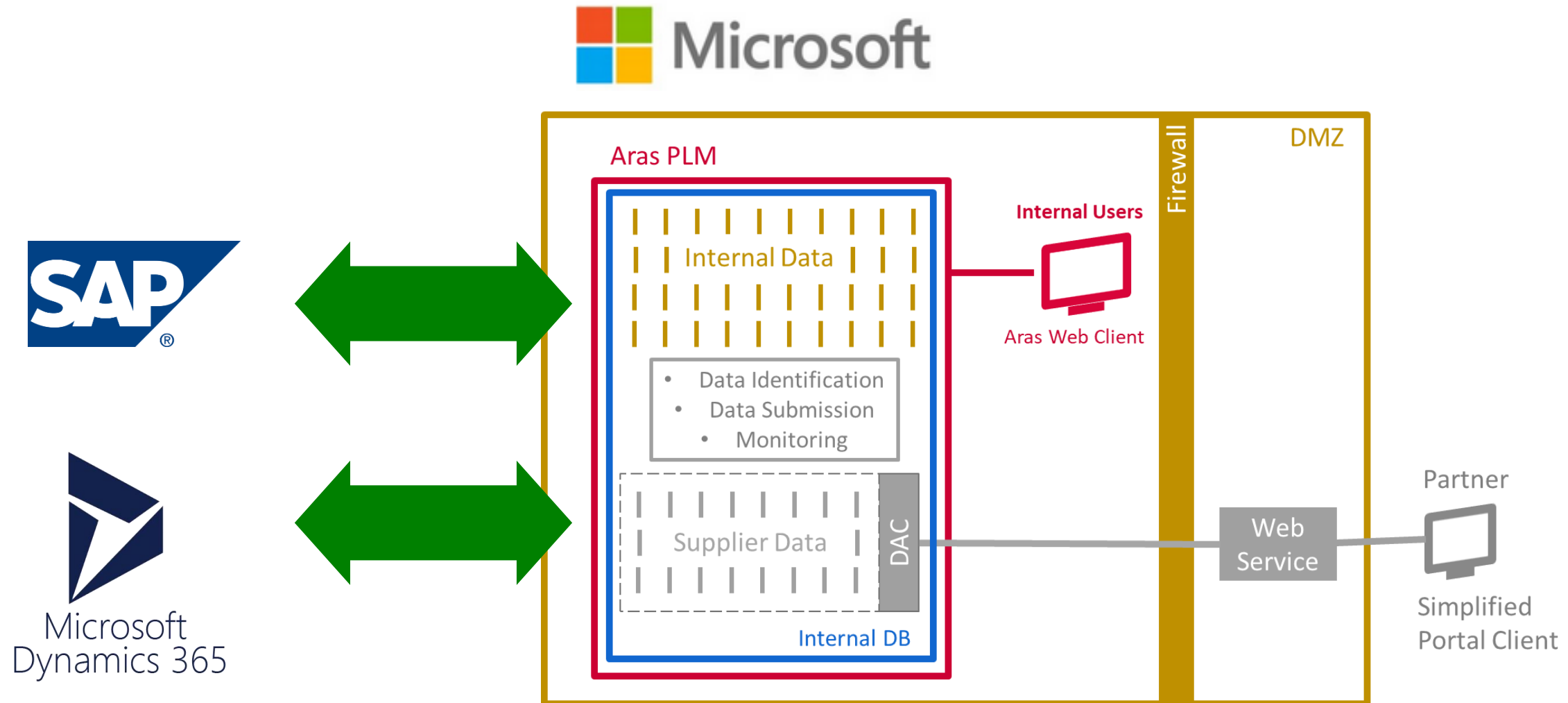
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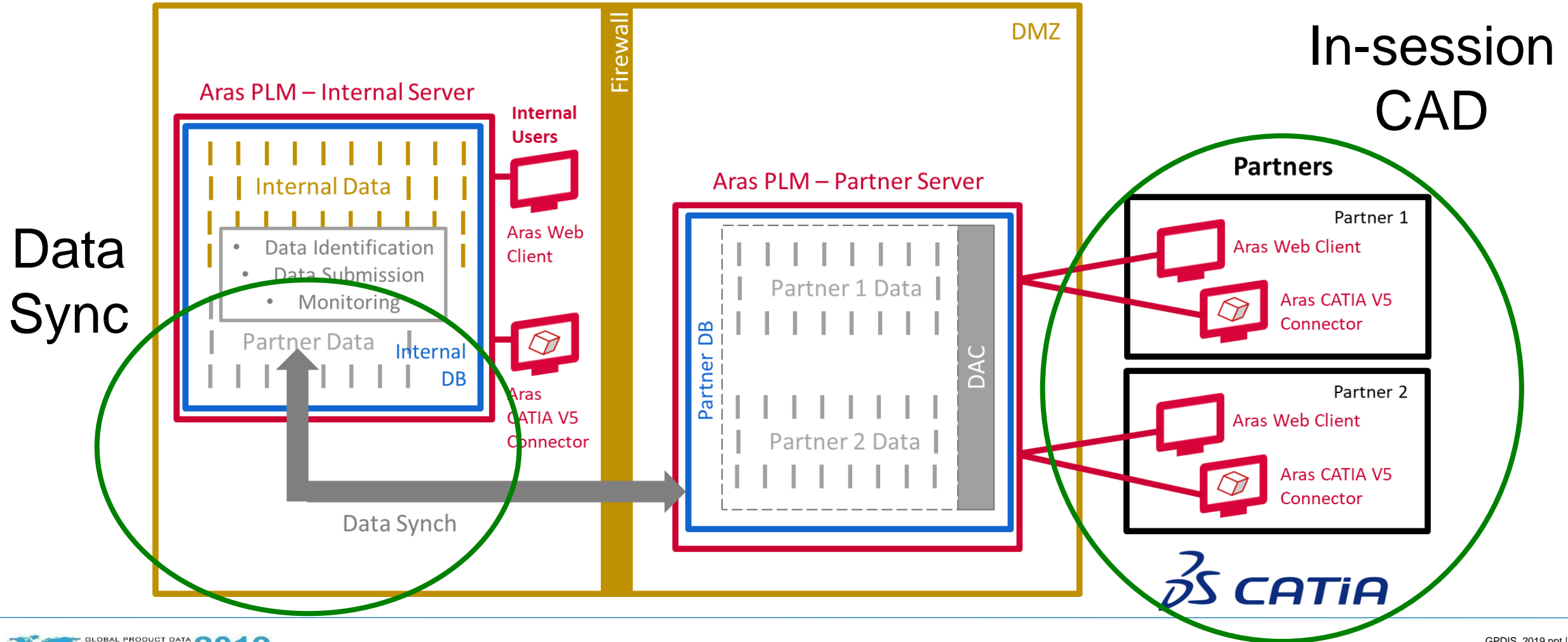
Deployment Example – Microsoft

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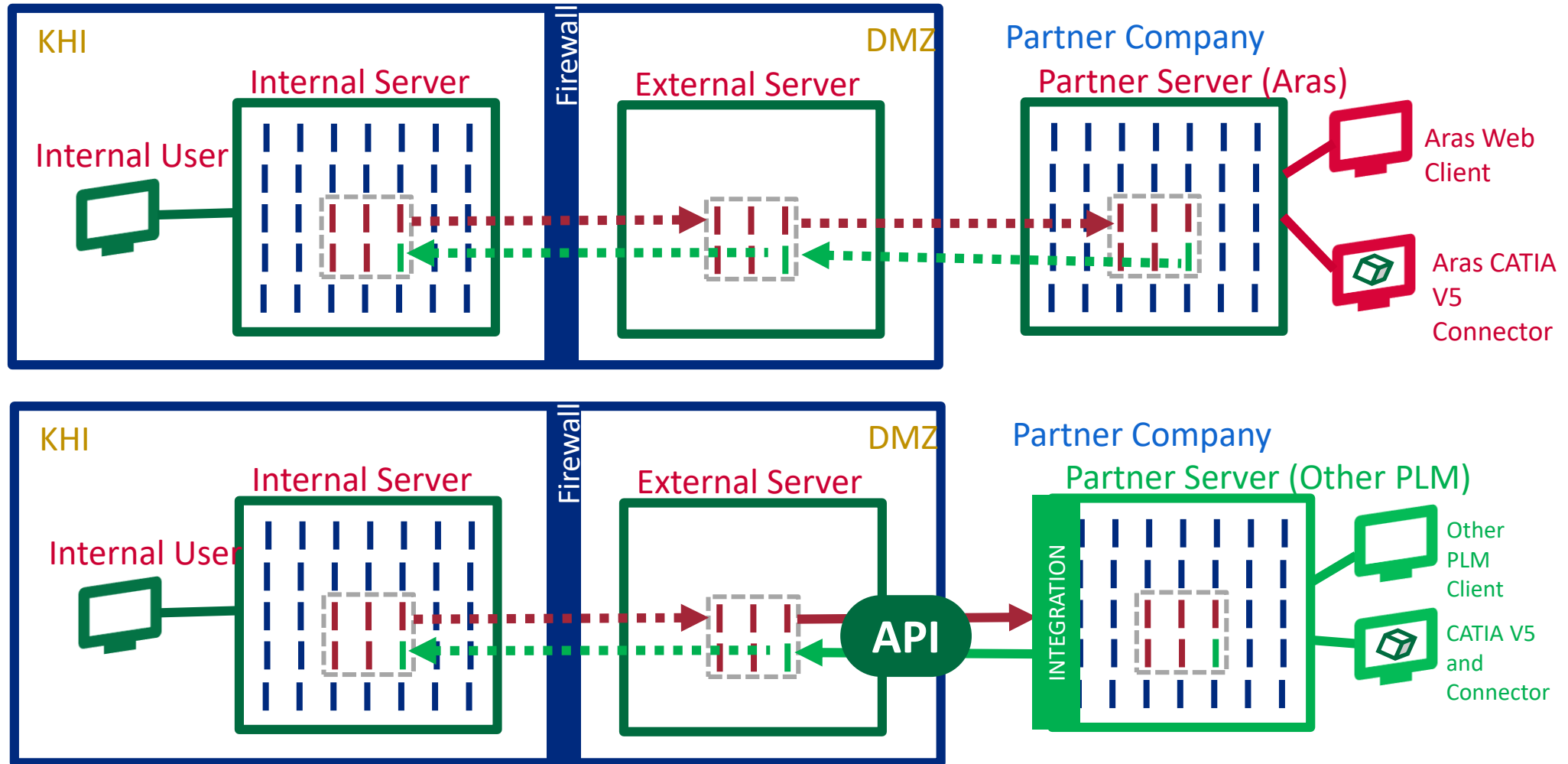
Deployment Example – Kawasaki Aerospace

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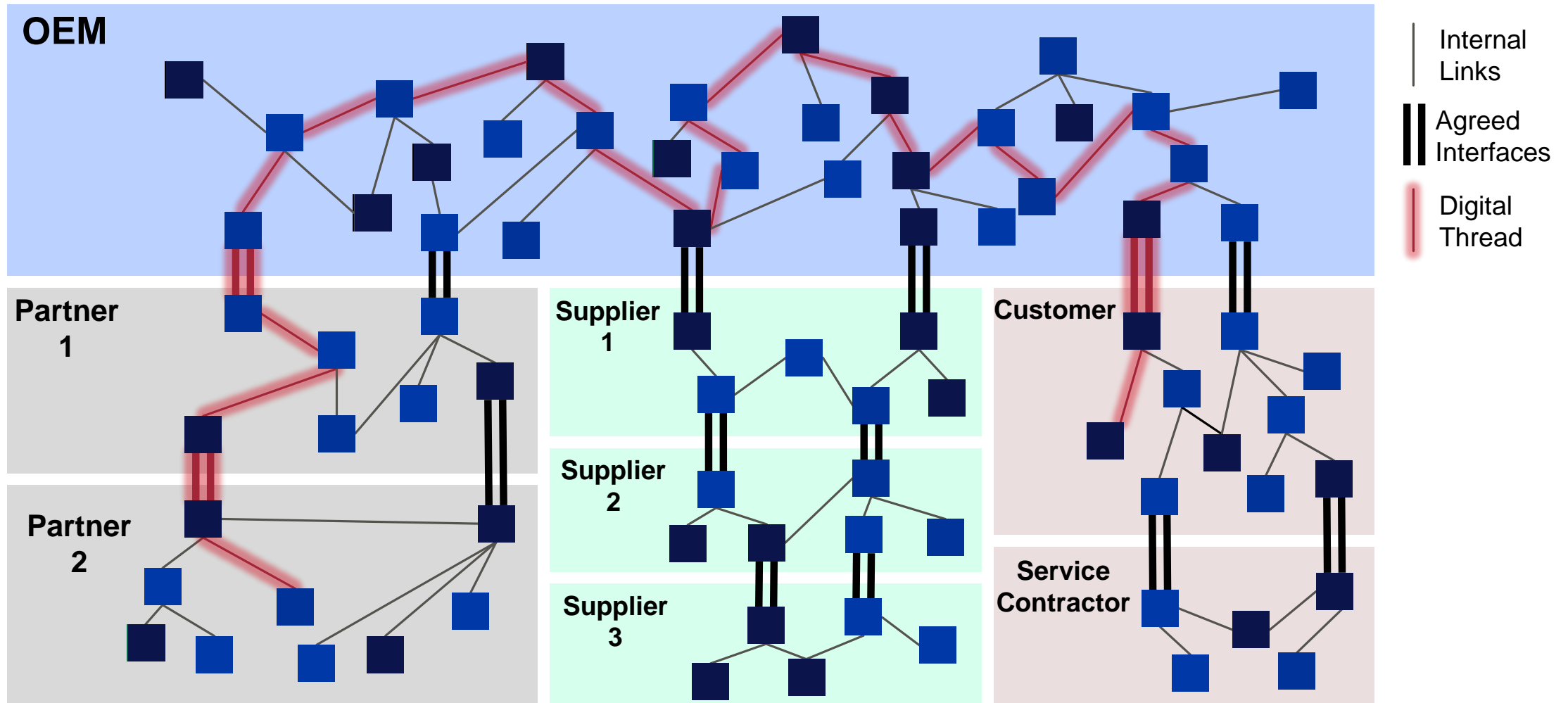
Next Step – Kawasaki Aerospace

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Conclusion: The Enterprise Digital Thread

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THANK YOU