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FRAUNHOFER INSTITUTE FOR MANUFACTURING TECHNOLOGY AND AUTOMATION IPA

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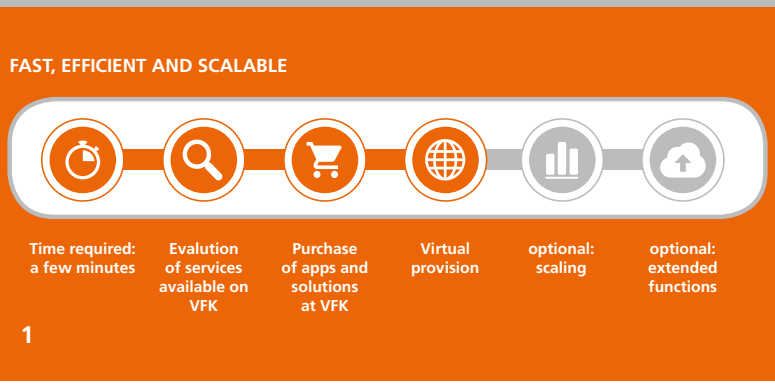

1 *The IT cloud platform can be implemented in just a few steps.*

VIRTUAL FORT KNOX

THE ONLY OPEN IT CLOUD PLATFORM FOR MANUFACTURING COMPANIES

Starting point

The introduction of the Internet of Things (IoT) is changing business logistics in the manufacturing industry and creating a new level of services in the manufacturing environment. The advancing digitization of production processes calls for modular and flexible software solutions capable of meeting rising industrial demands for stability, safety, reliability, traceability and adaptability (Industrie 4.0).

Solution

For some years now, Fraunhofer IPA has concerned itself with digital manufacturing tools. It is currently developing and also conducting research on the platform "Virtual Fort Knox" (VFK). Forming a link between providers and end-users of IT solutions for business and manufacturing applications, it brings two interest groups together:

- The cloud is an affordable and uncomplicated way for **manufacturing companies** to enter the world of digital production, or to adapt to the rising demand for networked and flexible production.
- Virtual Fort Knox enables **companies providing IT solutions** for business and manufacturing applications to supply their services in a flexible, cost-effective and customized manner.

Realization

The VFK platform offers manufacturing companies a private cloud for their organization within the secure VFK cloud. It is composed of the following elements:

VFK-Portal

- Homogeneous environment for service users, service providers and platform operators

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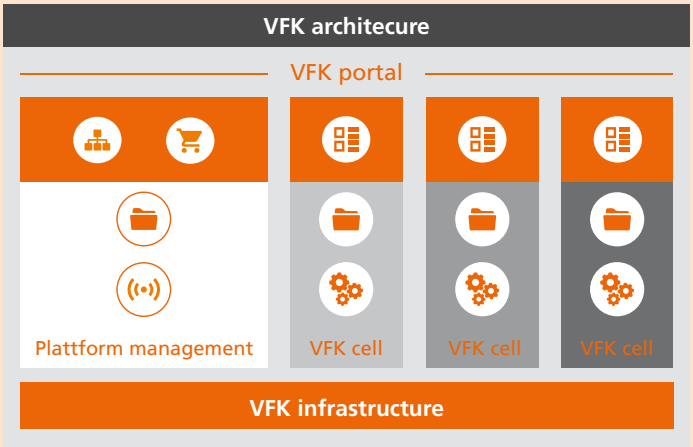
http://www.ipa.fraunhofer.de/virtual_fort_knox.html



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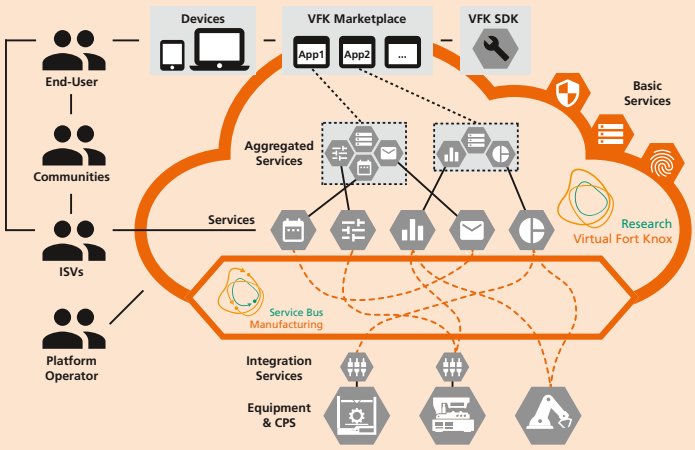

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Central platform management

- Market place management and assured VFK platform standards
- Administration and monitoring of the cell infrastructure
- Service accounting with metering and billing of individual price models

Decentralized VFK cells

- A secure encapsulated environment (VFK cell) for service users and providers
- Decentralized provision, usage and administration of services as a self-service
- Service orchestration using the VFK infrastructure and basic VFK services (e.g. manufacturing service bus)
- Updates of a company's service catalog as a self-service
- Self-governing individual rights management to map a company's organizational structure
- Automation of company services over the entire service lifecycle

VFK infrastructure

- Provision of a fully transparent infrastructure for computing, storage, networks, etc.

Our services

Fraunhofer IPA provides assistance with digitizing production processes and integrating Industrie 4.0. We help you to design and provide platform and IT architectures, develop needs-based manufacturing IT solutions, optimize your production processes and develop new business models.

Your advantages

Virtual Fort Knox features the following benefits:

- **Everything from one source** – via a one-stop shop for manufacturing companies
- **You select the services you need** – via an online market place
- **You only pay for what you really use** – thanks to a function- and needs-based billing model without having to make major investments in hardware or software
- **Fast implementation and integration** of new solutions - through the cloud concept and the use of open standards
- **Safe usage** of the "Virtual Fort Knox" platform – by complying with national data protection laws and using Germany as a server location

2 *Virtual Fort Knox provides all the components required to enter the world of digitization.*

3 *The open concept of VFK invites software providers and users to operate services via a secure cloud.*