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PC-based control as an enabler for flexible umati applications

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Project Manager


umati
universal
machine tool
interface



Components for Industrial Automation

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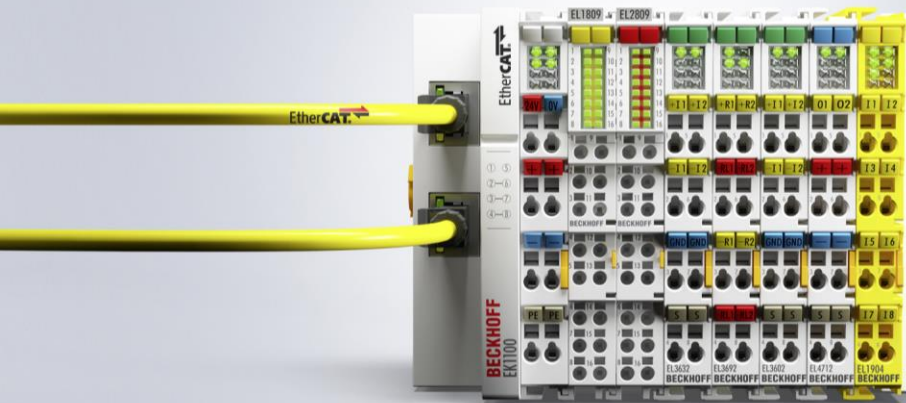
The IPC Company



The Automation Company



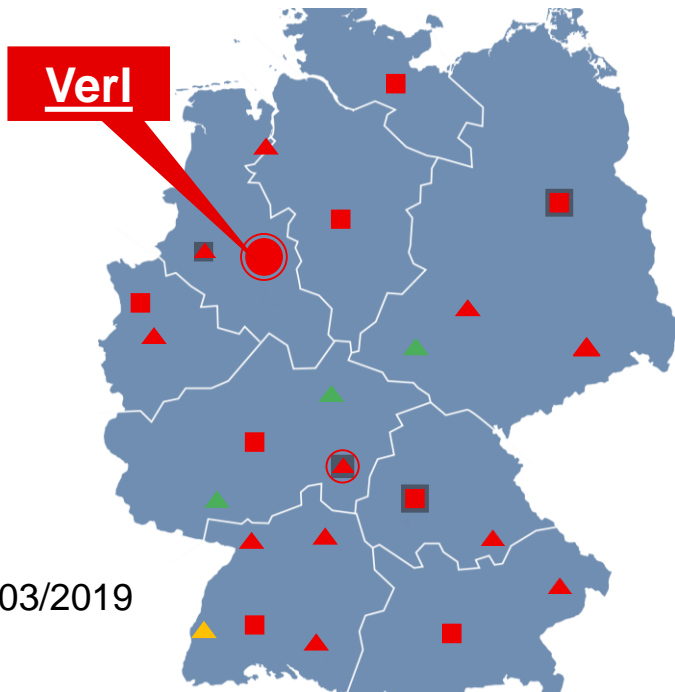
The I/O Company



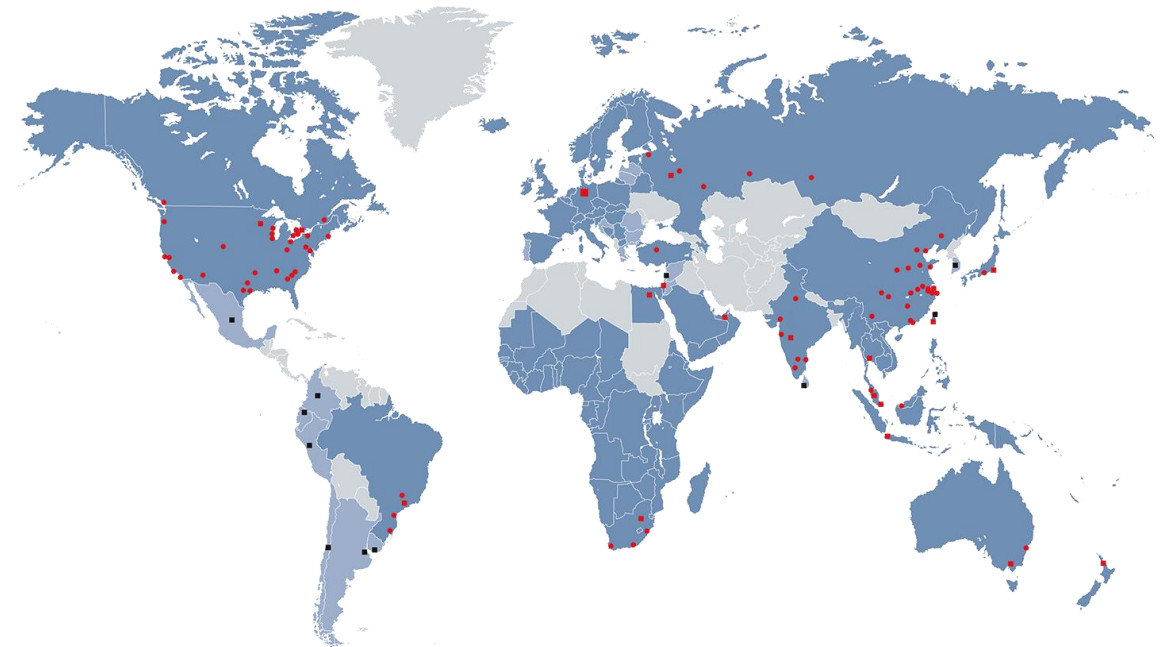
The Motion Company



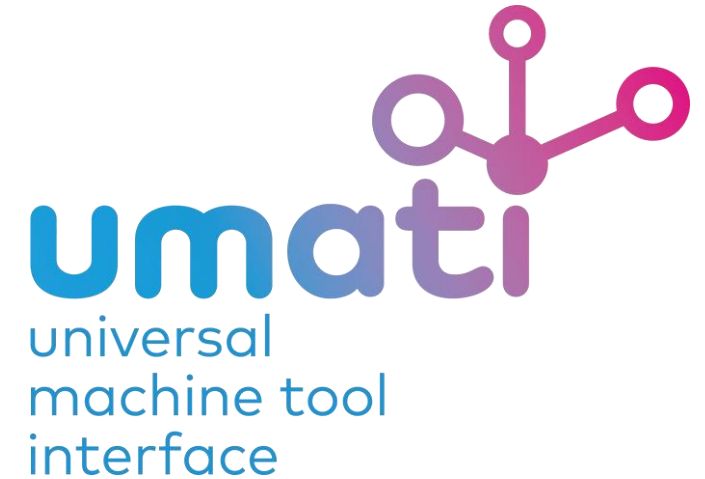
Headquarters:	Verl, Germany
Employees worldwide:	4,300
Number of engineers:	1,600
Sales/technical offices in Germany:	22
Beckhoff companies worldwide:	38 countries
Subsidiaries and distributors:	75 countries
Sales worldwide 2017:	810 million € (+19%)
Sales worldwide 2018:	916 million € (+13%)

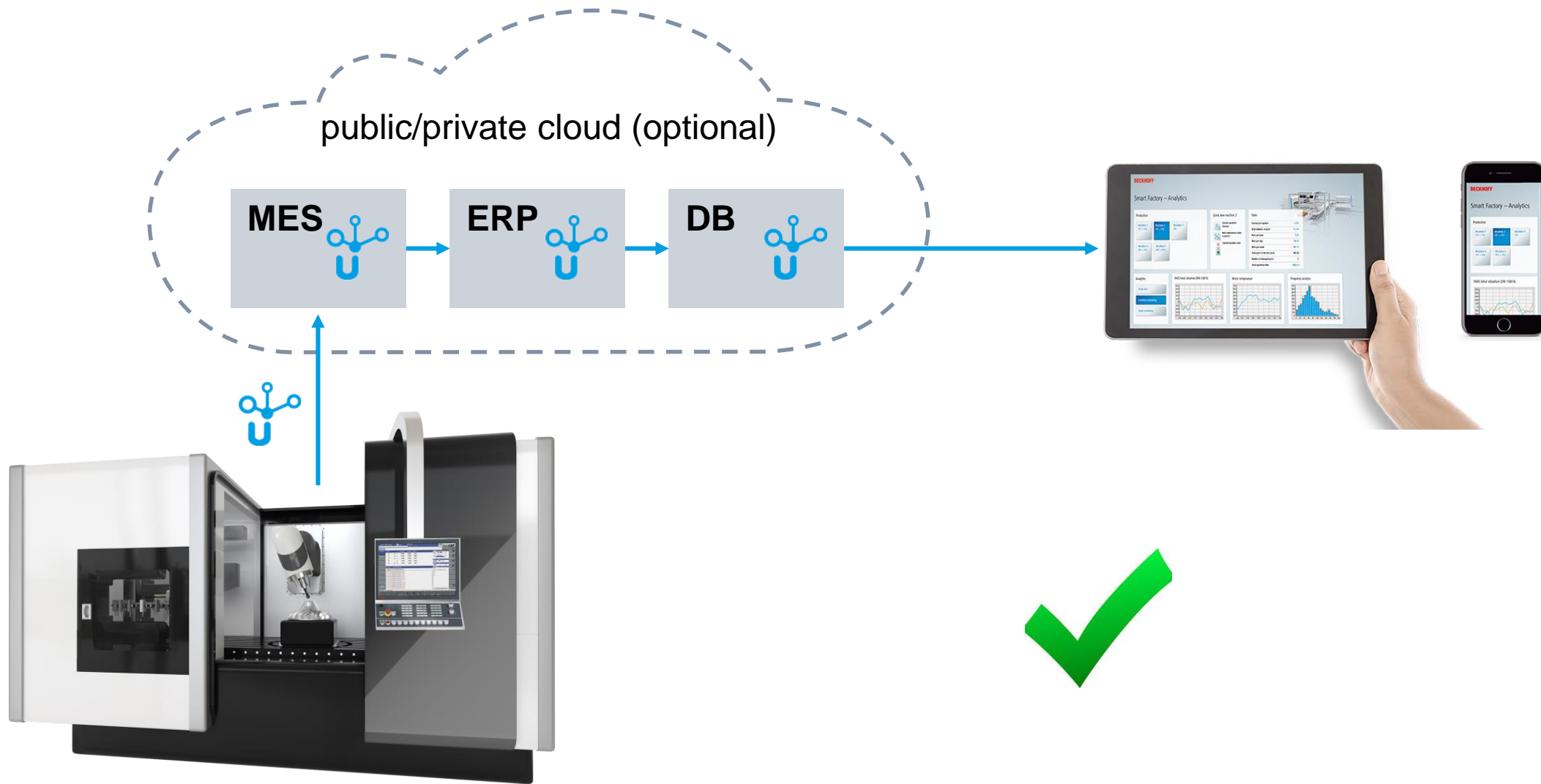


as of: 03/2019



- Tailor made interoperability standard for the machine tool industry
- Driven by numerous machine builders and all major control suppliers
- Defines how and what to communicate
- Seamless integration of machines, infrastructure components, software solutions into large manufacturing systems
- Extendable by design






- But what to do with:
 - Existing machines with legacy controllers?
 - Existing machining cells with different controllers?
- Main issues:
 - Machine builders may provide no or limited support.
 - Legacy controllers may not provide enough data.
 - Different controllers may use different communication systems.
- **How to save investment in an umati centric ecosystem?**



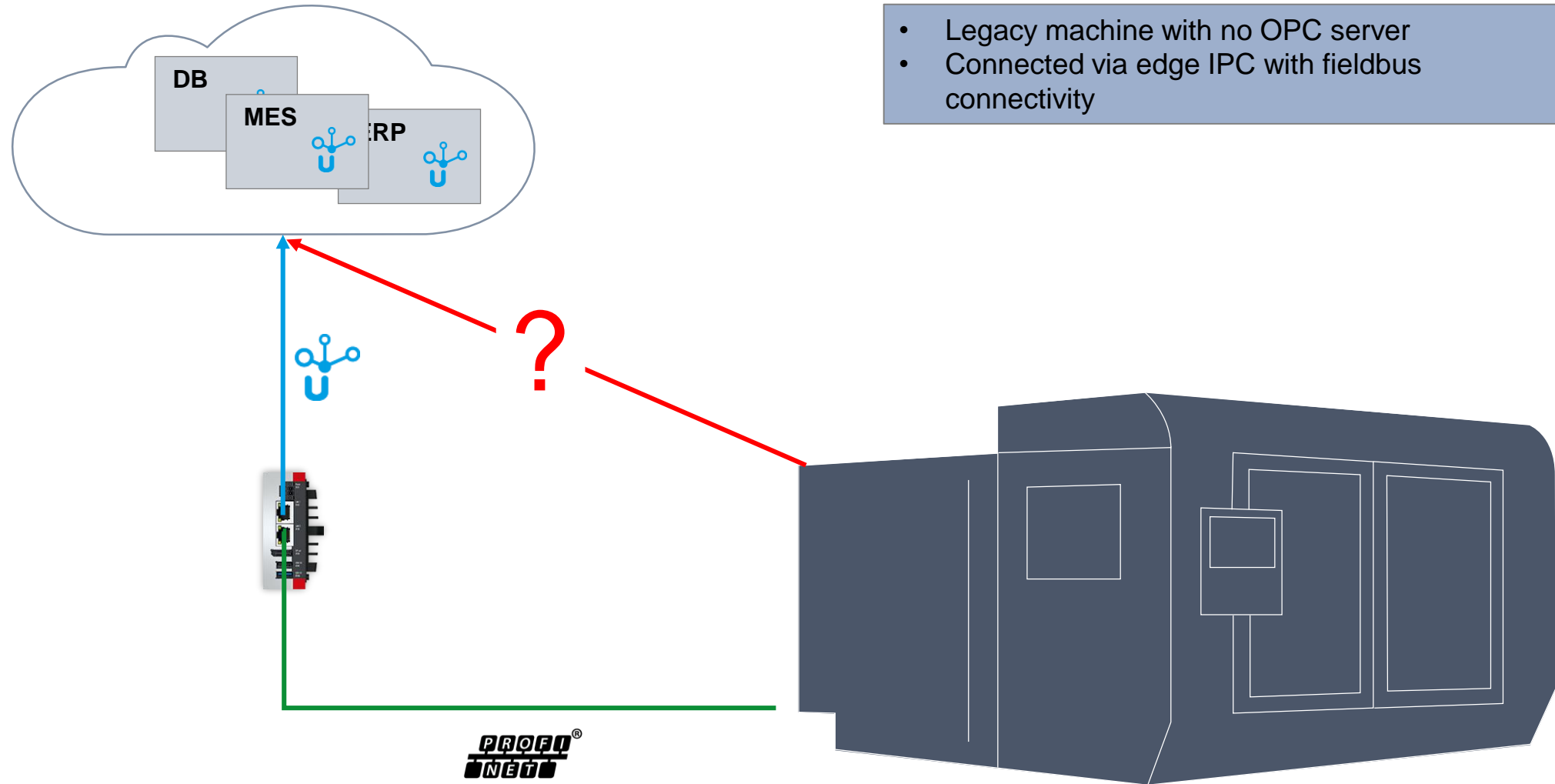
Industrial PC's benefits

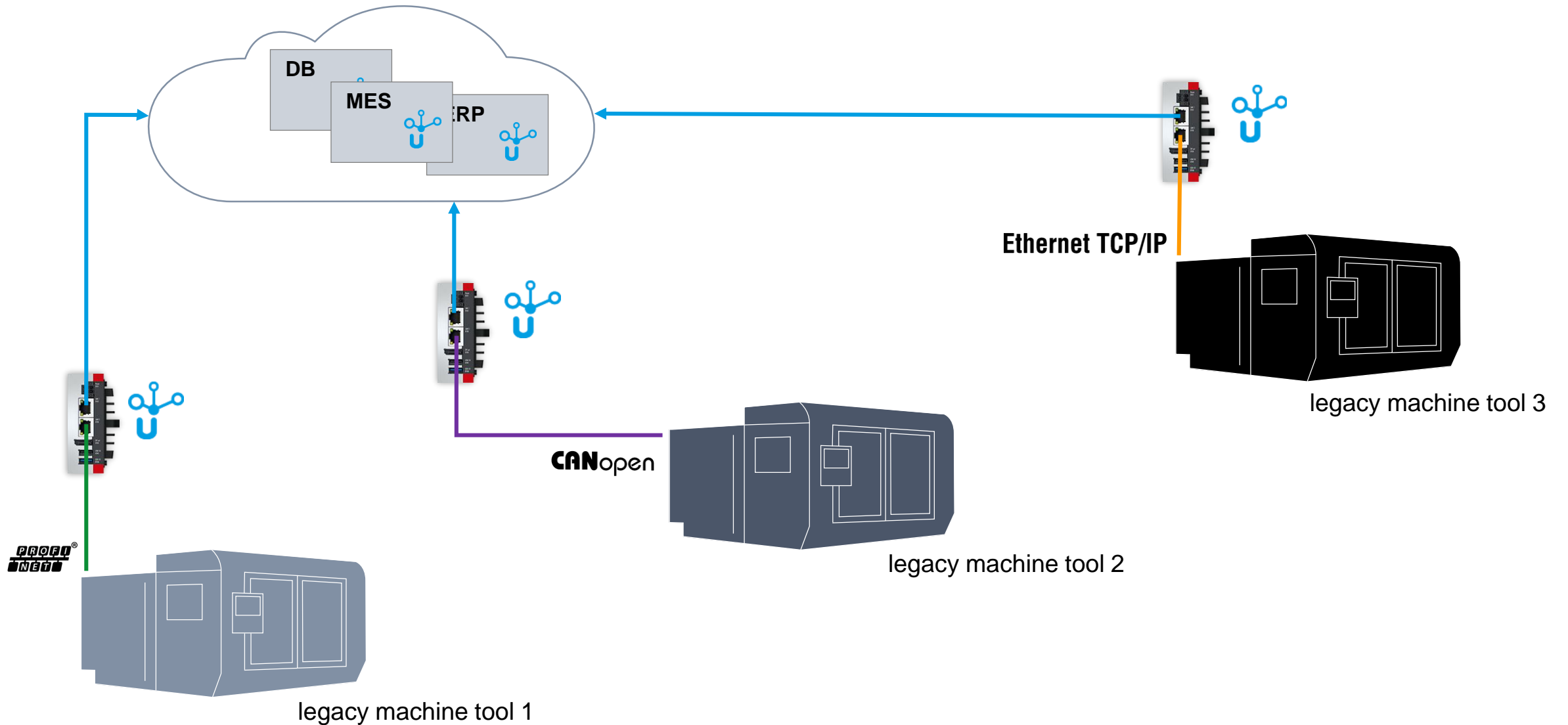
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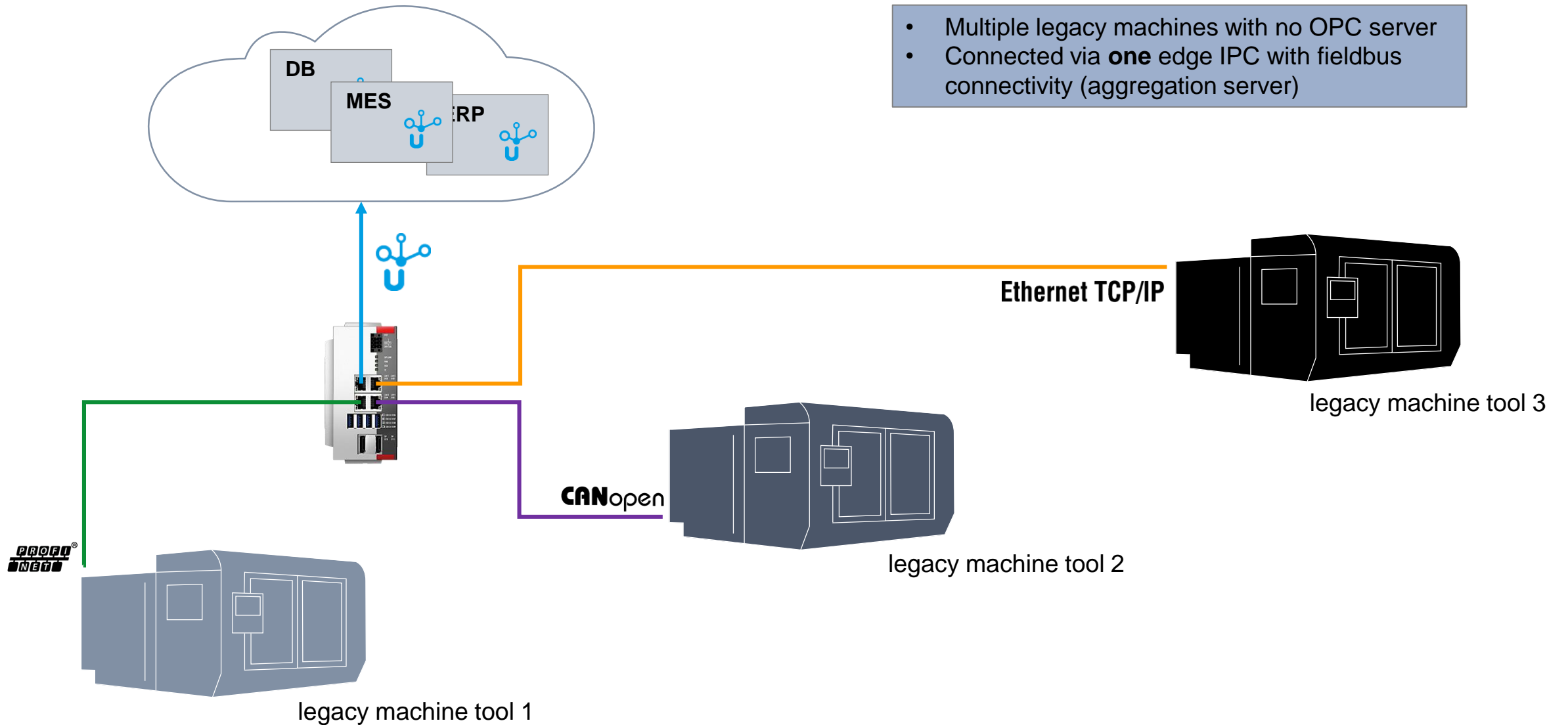
- Openness
- Standardised
- Scalable
- Master requirements of the IT by design
 - Interfaces
 - Availability
 - Technology
- But also a perfect solution for modern AT

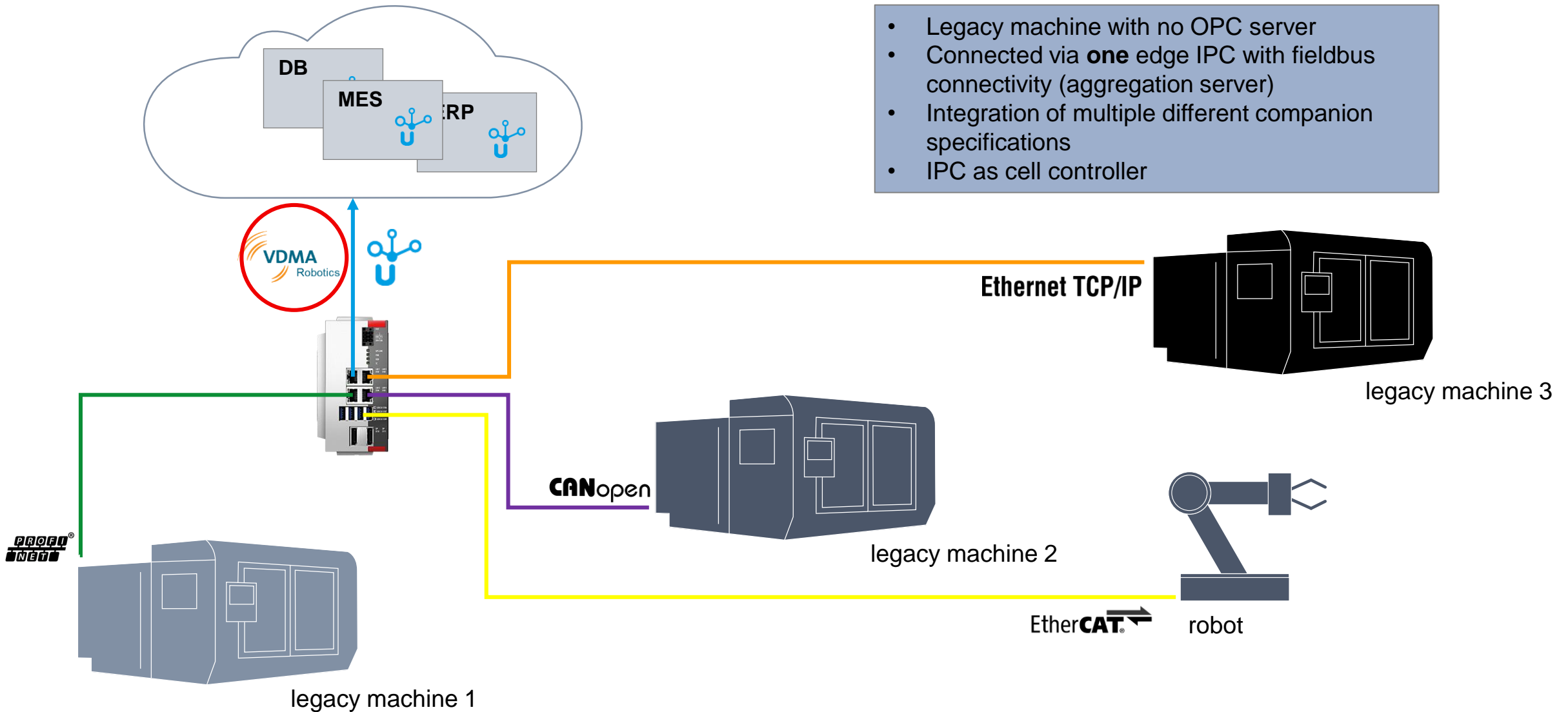

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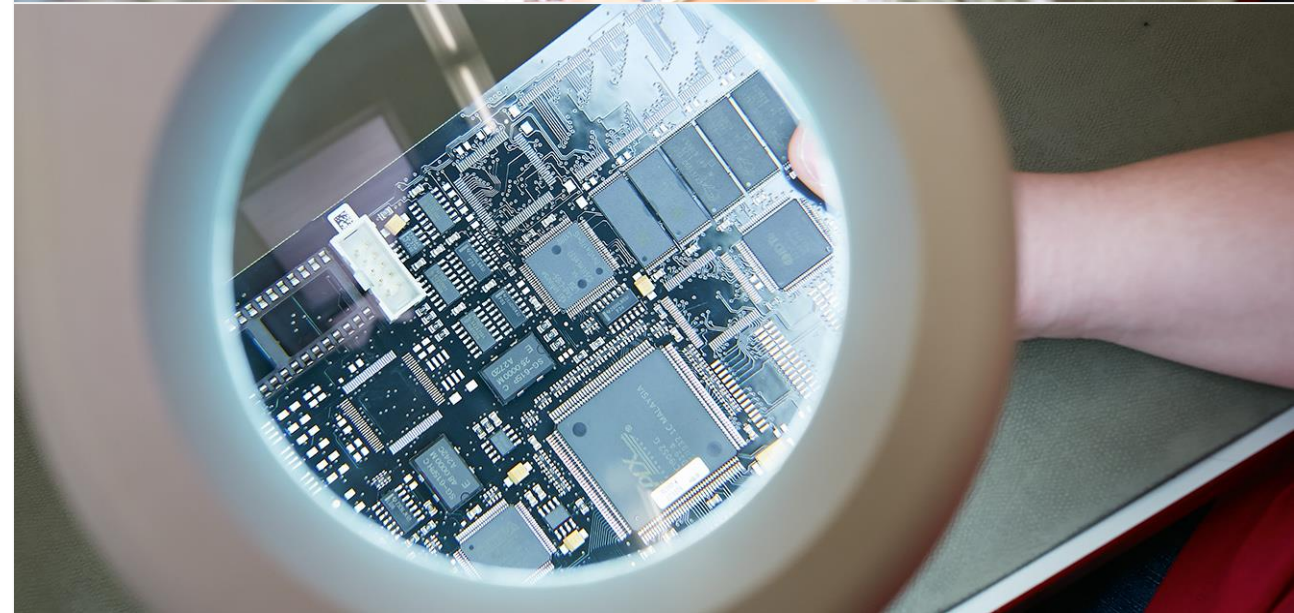
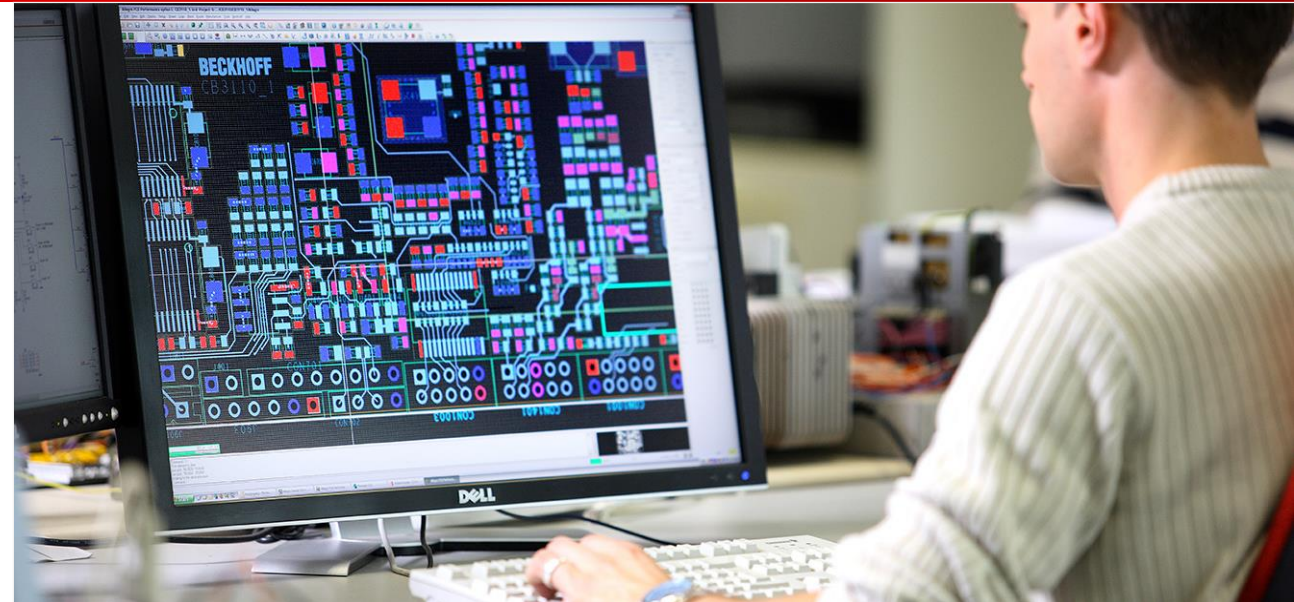


- Legacy machine with no OPC server
- Connected via **one** edge IPC with fieldbus connectivity (aggregation server)
- Integration of multiple different companion specifications
- IPC as cell controller

Industrial edge PC's – Is there more to it?

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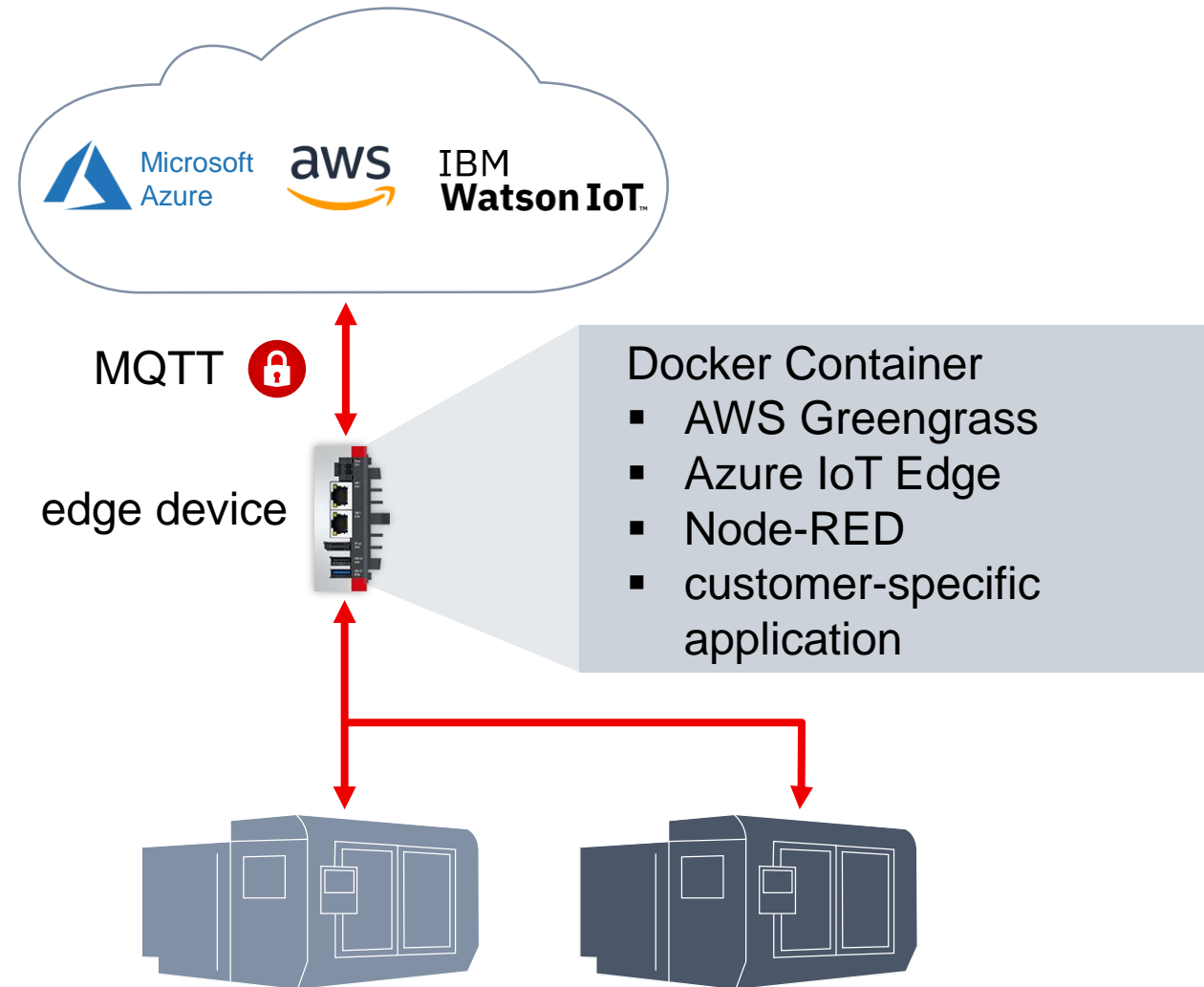
- Industrial IPCs are not limited to work as OPC servers only.
- They are also an excellent platform for value-added services.



Use case “IoT connectivity and edge analytics”

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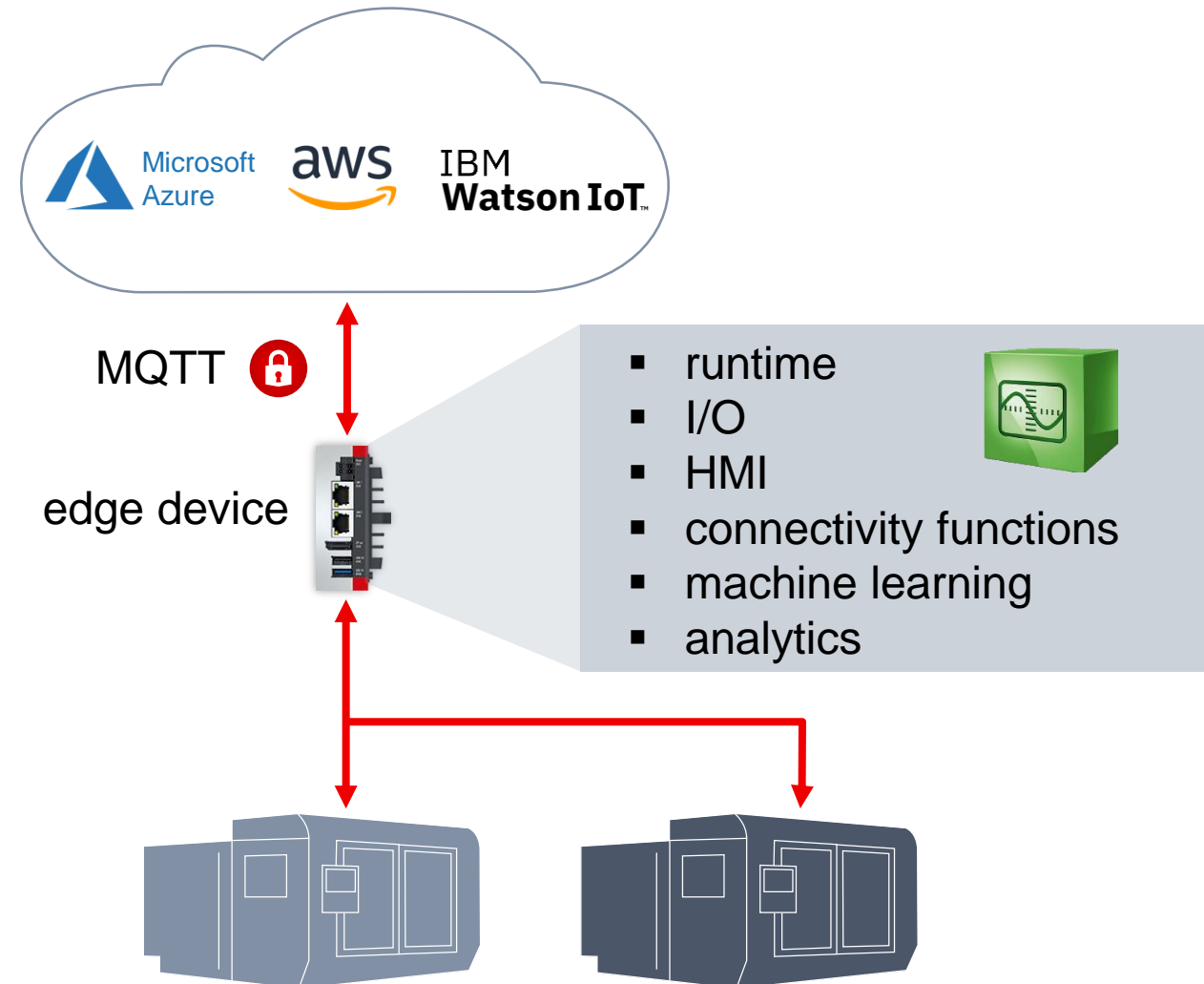
- Azure and AWS certified, industrial-proven edge hardware
- Support for greenfield and brownfield application scenarios
- Based on cloud provider edge runtimes
- Secure connectivity with cloud platforms
- typically running on Linux OS



Use case “TwinCAT on the edge”

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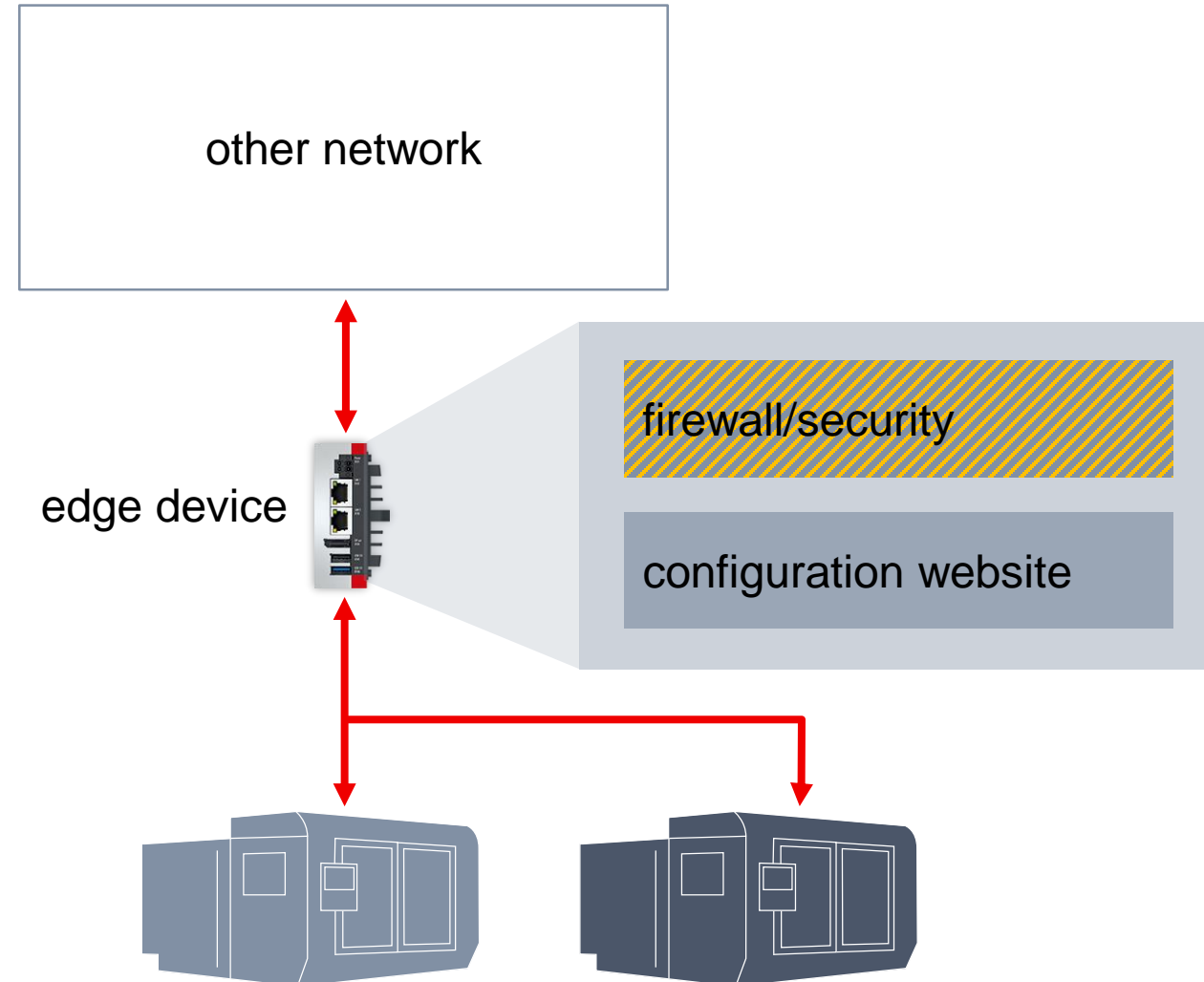
- support for greenfield and brownfield application scenarios
- Many use cases can be solved:
 - Edge analytics
 - IoT connectivity
 - Fieldbus connectivity
 - and much more



Use case “firewall gateway”

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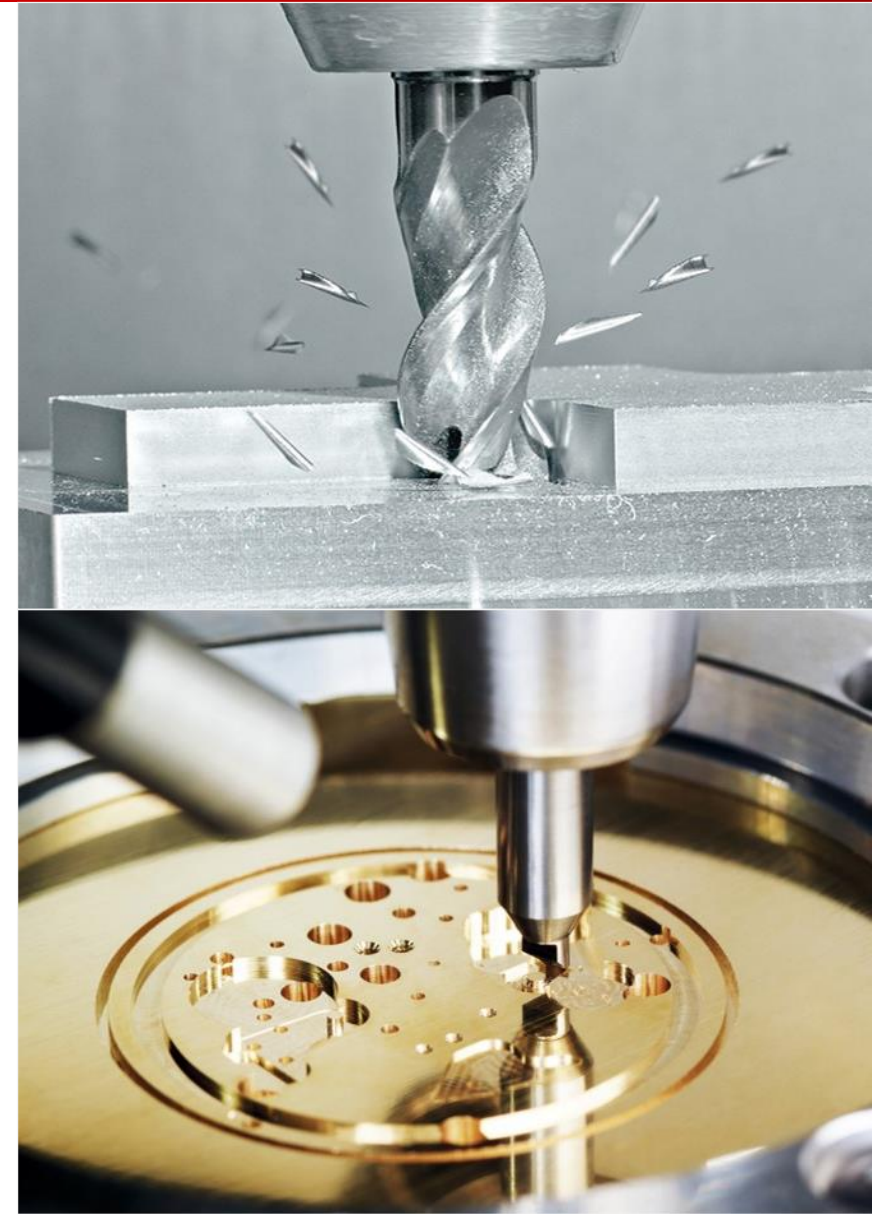
- Support for greenfield and brownfield application scenarios
- Firewall gateway to physically decouple controller machine network from office network
- Port filter allows to control which applications are allowed data communication (inbound/outbound).



Conclusion

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- umati provides seamless connectivity to the IT layer for new machine tools
- Existing machines and manufacturing cells may not be “umati ready” without further ado
- Industrial edge PC's:
 - efficiently bridge the gap between the new “umati world” and existing installations
 - provide enough power and flexibility for solving additional tasks and adding value to the machining solution



C60xx | Industrial-proven hardware for edge computing

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