

**KUKA**

| iiQoT

Product presentation







## KUKA iiQoT - product information


- i** The next generation of IIoT at KUKA
- i** Central platform to connect and add value to your robots
- i** Influenced by more than 4 years of experience in IIoT and lessons learned
- i** Suitable for small and large fleets




## KUKA iiQoT – „Increase the productivity of your robot fleet with KUKA iiQoT”

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**Increase productivity**  
*Ensure productivity of the system, detection of failure hotspots and bottlenecks more efficient maintenance*  
Identify improvements and ensure the overall performance
- 

**Efficient troubleshooting, maximize uptime and ensure continuous robot operation**  
*Fast identification of issues per remote, fast recovery*  
Get notified in case of issues, save time in troubleshooting, ensure smooth operation and increase availability
- 

**Clear overview and fleet optimization**  
*Transparency over robot fleet & keep fleet optimized*  
Access your robots from everywhere in one central platform with all data needed
- 

**Easy entry into digitalization**  
*Entry to KUKAs ecosystem, close collaboration & simplified B2B processes*  
User friendly, few experience is needed to get started

## KUKA iiQoT – „Increase the productivity of your robot fleet with KUKA iiQoT”



### Increase productivity

- **Optimize operation:** Detection of failure hotspots and bottlenecks (e. g. robots with high error frequency or messages blocking operation)
- **Avoid security issues:** Security monitor allows to ensure cyber security of all robots
- **Increase efficiency for maintenance:** See and optimize maintenance tasks in one view displaying all maintenance activities done and needed. This also helps to bundle maintenance activities to save costs & reduce down-times.



### Efficient troubleshooting, maximize uptime and ensure continuous robot operation

- **Get help easily and quickly:** Create, upload a diagnosis file (KRCDiag) & create a case in one workflow.
- **Save time:** In case of an error get instant & proactive notification
- **Solve complex issues:** Single view to see all messages & changes. Direct access to background information via Xpert to get troubleshooting support.
- **Avoid production issues:** Complete history of messages, conditions & changes to find source for production relevant issues. Even get proactive notifications for production critical conditions.

## KUKA iiQoT – „Increase the productivity of your robot fleet with KUKA iiQoT”



### Clear overview and fleet optimization

- **Keep overview:** Transparent overview of robots and equipment. This overview is complete customizable, digital, always up to date and works across different locations.
- **Easy and quick localization:** Fast identifying robots with certain criteria e.g. software versions, failures, etc. due to the powerful filters.
- **Keep fleet optimized:** Get support in unifying and updating your robot fleet due to the overview of all software or hardware versions of the robot systems.



### Easy entry into digitalization

- **Low entry barrier:** User-friendly interface so few experience is needed to get started.
- **Closer collaboration:** Share information in case support is needed.
- **Entry to KUKAs ecosystem:** Integrated KUKAs digital platforms like marketplace, Xpert & Robot Selector
- **Flexible:** Deployment with support of various systems
- **Simplified B2B processes:** Connection to internal KUKA systems (e. g. case generation)



## KUKA iiQoT Module



### Prerequisites

- Data provisioning in KUKA Public Cloud (European server)
- KUKA.DeviceConnector pre-installed 2.1.7 (or newer, Free)
- Acceptance of the valid legal documents (T&Cs, SLA, GDPR)

Free for use before 10/23

Free



**KUKA iiQoT.Basic**  
(NPI 10/21)

- Asset Manager**
- Messages**
- Condition Monitoring**
- Security Monitor**
- Changelog**
- Fault Diagnosis**
- Notifications**
- Maintenance Manager**

Future version

**KUKA iiQoT.Advanced (NPI 10/23)**









- Predictive Maintenance**
  - *Condition-based Maintenance*
  - *Anomaly Detection (preparation)*
- Efficiency Monitoring**
  - *Energy consumption analysis*
  - *Cycle time analysis*
- Load Analysis**
  - *Load test (Robot Selector)*
  - *Current load*
- Backup Management**
- Process Data Aggregation**

## KUKA iiQoT.Basic Outlook

Free



**KUKA iiQoT.Basic**  
(NPI 10/21)

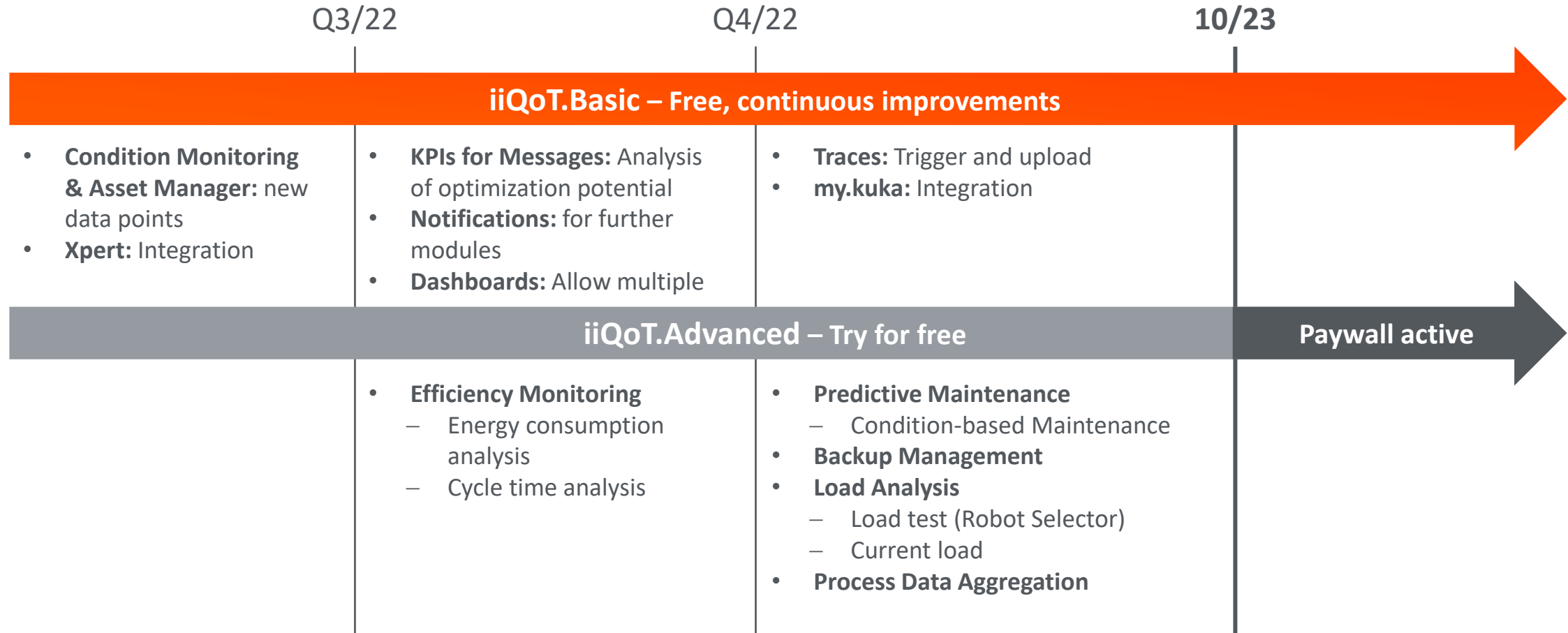
-  **Asset Manager**
-  **Messages**
-  **Condition Monitoring**
-  **Security Monitor**
-  **Changelog**
-  **Fault Diagnosis**
-  **Notifications**
-  **Maintenance Manager**

### Future features

- **Condition Monitoring & Asset Manager:** new data points
- **Xpert:** Integration
- **KPIs for Messages:** Trend analysis, analysis of optimization potential
- **Notifications:** for further modules (Condition Monitoring, Maintenance Manager, Changelog)
- **Traces:** Trigger and upload
- **Dashboards:** Allow multiple
- **my.kuka:** Integration
- **Continuous improvements**



## iiQoT Timeline



NPI iiQoT.Advanced





### Asset Manager

**Robot Details (R)**

- Connection Status: disconnected (since 03/05/2021, 07:30:50)
- Working state: error
- Operating mode: AUT EXT T1 T2 invalid
- Robot name: Benchmark\_8\_6\_5
- Robot serial number: 4380005
- Robot type: #KR340R3330 C4 FLR
- Operating hours: 286 hrs
- Responsible: Hohenacker
- External axes: 0
- External kinematics: more details
- Program-Override: 5%
- Brake test active: active
- Result of last brake test: passed

**Cabinet Details (C)**

- Controller type: KR C4
- Serial number: 3043191
- IP Address: 10.129.220.120
- Mainboard Type/Model: MCC40 (D3445-K1)
- Hardware components: more details
- HDD Storage Type: SSD
- Smartpad connected: disconnected
- Initial operation date: 07/10/2020

**Software Details (S)**

- System software: KSS 8.6.5.0268
- Tech packages: more details
- Windows SW-Revision: Windows10 IoT VS.1.0
- Windows Security Update: V1.1.1
- Power management (PMB): running
- Current WoV project:
  - Name: 2611078244000012000
  - Version: 1.3.0
  - Activation: 07/10/2020

UI Design

### Added value

- + Up to date asset information with clear overview
- + Fast identification of assets with certain properties
- + Easily find robots by hierarchy (location) or custom attributes (tags)



## Asset Manager (2)

## Filters

The screenshot shows the 'Find Robots' section of the Asset Manager. It includes a 'Main Menu' icon and the KUKA logo. The search criteria are: In Factory (Augsburg), Hall (North Hall), Line (Gear Assembly), and Cell (3 selected). Below this is a '+ add location' button. The 'Properties (5)' section lists: Family (EQUAL), Working Hours (GREATER), Software Y (Version), Harddisc (Type), and Tags (EQUAL). A dropdown menu is open over the 'Working Hours' filter, showing options: EQUAL, GREATER, LESS, IS NOT, BETWEEN, and IS NOT. Below the filters is a '+ add filter' button. At the bottom left, it says '32 Robots found' and 'Close Filter'. A dark grey triangle in the bottom right corner contains the text 'UI Design'.



## Asset Manager

### Features

- Information about the current asset status
- Definition of tags (e. g. for application) & locations (hierarchy)
- Powerful filters (attributes, tags, location) (combinable by Boolean operations)
- Sortable table and dashboard view
- Separate information on robot hardware, controller & software
- Aggregations for attributes (e. g. software version)
- Additional information on external kinematics & hardware components
- *Future releases: KUKA Xpert integration, data via KUKA data connection (product information, documentation ...)*



Overview

Search messages

Last 3 days 01/05/2021 00:00 TO 03/05/2021 23:59

493 Notif. messages 820 Status messages 5 Ack. messages 0 Wait messages 4 Dialog messages

Type	Module	Message ID	Message text	Status	When?	Duration
!	P00	1	Wait for PGNO_VALID=True	!	03/05/2021, 10:56:20	-
!	KSS	470	Safe robot override reduction active	✓	03/05/2021, 10:56:14	00:00:04
!	SIMULATE	3	Wait for DL_ToolReleased	✓	03/05/2021, 10:56:13	00:00:00
!	KSS	470	Safe robot override reduction active	✓	03/05/2021, 10:56:11	00:00:03
!	KSS	470	Safe robot override reduction active	✓	03/05/2021, 10:56:03	00:00:03
!	KSS	470	Safe robot override reduction active	✓	03/05/2021, 10:56:00	00:00:03
!	KSS	470	Safe robot override reduction active	✓	03/05/2021, 10:55:57	00:00:03
!	KSS	470	Safe robot override reduction active	✓	03/05/2021, 10:55:54	00:00:03
!	KSS	127	E1, E2 asynchronous external axis	!	03/05/2021, 10:55:51	00:00:03
i	[Milling_Spindle] [Milling_Spindle]	7	Spindelstopp durch GCODE M5 mit 5000 1/min	✓	03/05/2021, 10:55:48	00:00:03
i	[Milling_Spindle] [Milling_Spindle]	9	Drehzahl wurde auf 5000 1/min geändert gbCNCActive TRUE gbSpindleInAuto TRUE	✓	03/05/2021, 10:55:45	00:00:03



## Messages

### Added value

- + Fast recognition of critical events
- + Detection of failure hotspots
- + Support in fault diagnosis
- + Optimization of operation

### Features

- List view of messages with relevant attributes (type, text, source ...)
- Filter for attributes
- *Future releases: Display of top KPIs (most frequent messages, most frequent source, duration of acknowledgement ...)*



### Notifications

The screenshot shows the KUKA Messages interface. At the top, there's a navigation bar with 'Menu', '64 Robots', and search filters for 'Location: Augsburg', 'Properties: Robot: Type, KR Quantec', and 'Software: xy'. A search bar for 'Search Robots' is also present. The main content area is titled 'Messages' and includes an 'Overview' section with a filter input and date/time filters (Heute, 19.03.2021, 00:00 bis 19.03.2021, 23:59). Below this, there are five summary cards: 'Notif. messages' (43625), 'Status messages' (2337), 'Ack. messages' (32), 'Wait messages' (3), and 'Dialog messages' (8). The main part of the interface is a table of messages with columns for Type, Module, Message ID, Message text, Robot name, Status, When?, and Duration. A context menu is open over one of the messages, showing options for 'Create notification' and 'Block messages'. A 'UI Design' watermark is visible in the bottom right corner of the screenshot.

Type	Module	Message ID	Message text	Robot name	Status	When?	Duration
i	KSS	5001	File modified /R1/\$CONFIG.DAT	VSS8.3.21		08/04/2021, 17:12:08	-
x	KSS	666	File modified /R1/\$CONFIG.DAT	Bernd Seiner		08/04/2021, 17:02:05	00:00:06
i	KSS	5001	File modified /R1/\$CONFIG.DAT	VSS8.3.21		08/04/2021, 17:02:05	-
i	KSS	5001	File modified /R1/\$CONFIG.DAT	VSS8.3.21		08/04/2021, 16:57:03	-
i	KSS	5001	File modified /R1/\$CONFIG.DAT	VSS8.3.21		08/04/2021, 16:52:01	-
i	KSS	5001	File modified /R1/\$CONFIG.DAT	VSS8.3.21		08/04/2021, 16:47:00	-
i	KSS	5001	File modified /R1/\$CONFIG.DAT	VSS8.3.21		08/04/2021, 16:41:58	-
i	KSS	5001	File modified /R1/\$CONFIG.DAT	VSS8.3.21		08/04/2021, 16:36:57	-
i	KSS	5001	File modified /R1/\$CONFIG.DAT	VSS8.3.21		08/04/2021, 16:31:55	-
i	KSS	5001	File modified /R1/\$CONFIG.DAT	VSS8.3.21		08/04/2021, 16:26:53	-
i	KSS	5001	File modified /R1/\$CONFIG.DAT	VSS8.3.21		08/04/2021, 16:21:52	-
i	KSS	5001	File modified /R1/\$CONFIG.DAT	VSS8.3.21		08/04/2021, 16:16:50	-

### Added value

- + Get informed quickly about user relevant events
- + Proactive notifications without being online

### Features

- Notifications via mail
- Triggering by defined events



### Security Monitor

#### Added value

- + Ensure robot security
- + Automatically detects critical status

#### Features

- Security status CPC, virus scanner, open ports, NonAdmin
- Aggregation for fleet including dashboard

**Security Status**

- CPC**: 13% inactive on 13 Robots
- Non-Admin**: 63% inactive on 63 Robots
- Antivirus**: 100% active on all Robots

**Software Versions**

7 Versions

- 5.52 (30 Robots)
- 5.42 (20 Robots)
- 5.22 (20 Robots)
- 4.11 (20 Robots)
- Others (10 Robots)

**Security Issues** 76 > Open in Asset Manager

Robots	Status	Issue	Location
KR16-Robot-A	Alert	CPC inactive	Plant Augsburg / GearAssembly / Halle1 / Cell-3a
KR16-Robot-B	Alert	CPC inactive	Plant Augsburg / GearAssembly / Halle1 / Cell-3a
KR16-Robot-C	Alert	CPC inactive	Plant Augsburg / GearAssembly / Halle6 / Cell-1
KR16-Robot-D	Alert	Non-Admin inactive	Plant Augsburg / GearAssembly / Halle6 / Cell-1
KR16-Robot-E	Alert	Non-Admin inactive	Plant Augsburg / GearAssembly / Halle6 / Cell-1
KR16-Robot-F	Alert	Non-Admin inactive	Plant Augsburg / GearAssembly / Halle6 / Cell-1
KR16-Robot-G	Alert	CPC inactive	Plant Augsburg / GearAssembly / Halle6 / Cell-1
KR16-Robot-H	Alert	CPC inactive	Plant Augsburg / GearAssembly / Halle6 / Cell-1
KR16-Robot-I	Alert	CPC inactive	Plant Augsburg / GearAssembly / Halle6 / Cell-1

1 of 2



### Changelog

Menu Logout **KUKA**

38 Robots Search assets

Open Filters

Changelog

General Changes **Robot Program Changes**

Last 14 days 20/04/2021 00:00 TO 03/05/2021 23:59

Filter Entries: Please select ...

Category	Robot name	Robot serial	Cabinet serial	Component	Changed from	Changed to	When	Reason	Counter
C	SP41 110RB 100	1261652	-	KSP	Hw Revision: 3B Sw Revision: 1.5.10.2752 (relea... Serial Number: 115376	Hw Revision: 3B Sw Revision: 1.5.10.2752 (relea... Serial Number: 93093	20/04/2021, 00:20:10	-	127
CFG	SP41 220RB 100	1261666	-	Base Data	Base Data 60: [X 1498.09.Y 262... Base Data 61: [X 1498.09.Y 262... Base Data 63: [X 255773677.Y 19...	Base Data 60: [X 1498.09.Y 262... Base Data 61: [X 1498.09.Y 262... Base Data 63: [X 2559.49097.Y 1...	20/04/2021, 00:20:09	-	61
C	SP41 220RB 100	1261666	-	KSP	Hw Revision: 3B Sw Revision: 1.5.10.2752 (relea... Serial Number: 114727	Hw Revision: 3B Sw Revision: 1.5.10.2752 (relea... Serial Number: 92937	20/04/2021, 00:20:09	-	131
CFG	SP41 140RB 100	1261656	-	Base Data	Base Data 60: [X 9782.88281.Y 5... Base Data 61: [X 9782.88281.Y 5... Base Data 63: [X 9051.50879.Y 3...	Base Data 60: [X 9783.67578.Y 3... Base Data 61: [X 9783.67578.Y 3... Base Data 63: [X 9051.39746.Y 2...	20/04/2021, 00:20:09	-	64
C	SP41 140RB 100	1261656	-	SION-KCP (00-291-556)	Hw Revision: V1.0.0-0 Sw Revision: V1.15-2 Serial Number:	Hw Revision: V1.0.0-0 Sw Revision: V1.15-2 Serial Number: 11452	20/04/2021, 00:20:09	-	23
C	SP41 140RB 100	1261656	-	KSP	Hw Revision: 3B Sw Revision: 1.5.10.2752 (relea... Serial Number: 115384	Hw Revision: 3B Sw Revision: 1.5.10.2752 (relea... Serial Number: 93097	20/04/2021, 00:20:09	-	-
C	SP41 260RB 200	1261651	-	SION-KCP (00-291-556)	Sw Revision: V1.15-2 Serial Number: 11596	Sw Revision: V1.15-2 Serial Number: 11596	20/04/2021, 00:20:08	-	-
CFG	SP41 260RB 200	1261651	-	Base Data	Base Data 63: [X 255.345596.Y 1...	Base Data 63: [X 264.794098.Y ...	20/04/2021, 00:20:08	-	-
C	SP41 260RB 200	1261651	-	KSP	Hw Revision: 3B Sw Revision: 1.5.10.2752 (relea... Serial Number: 115377	Hw Revision: 3B Sw Revision: 1.5.10.2752 (relea... Serial Number: 93100	20/04/2021, 00:20:08	-	-
C	SP41 210RB 100	1261665	-	KSP	Hw Revision: 3B Sw Revision: 1.5.10.2752 (relea... Serial Number: 114725	Hw Revision: 3B Sw Revision: 1.5.10.2752 (relea... Serial Number: 92914	20/04/2021, 00:20:07	-	-

UI Design

### Added value

- + Digitalized and automatic log of changes
- + Tracking of external changes to the system (program, parameters ...)
- + Track also manual changes

### Features

- Detailed list of changes including number of changes
- Track hardware, software, checksums, programs, configuration changes
- Manual entry for custom changes (energy supply system, gear, oil change ...)
- Comment function



## Fault diagnosis

## Fetch KRCDiag



## Fault Diagnosis

### Added value

- + Helps to localize root causes and thus reducing mean time to recovery
- + Reduce production loss due to faster troubleshooting

### Features

- KRCDiag handling (trigger & download)
- Automatic case generation (KUKA data connection required)
- *In future releases: KUKA Xpert integration*



## Condition Monitoring

## Robot Detail Page



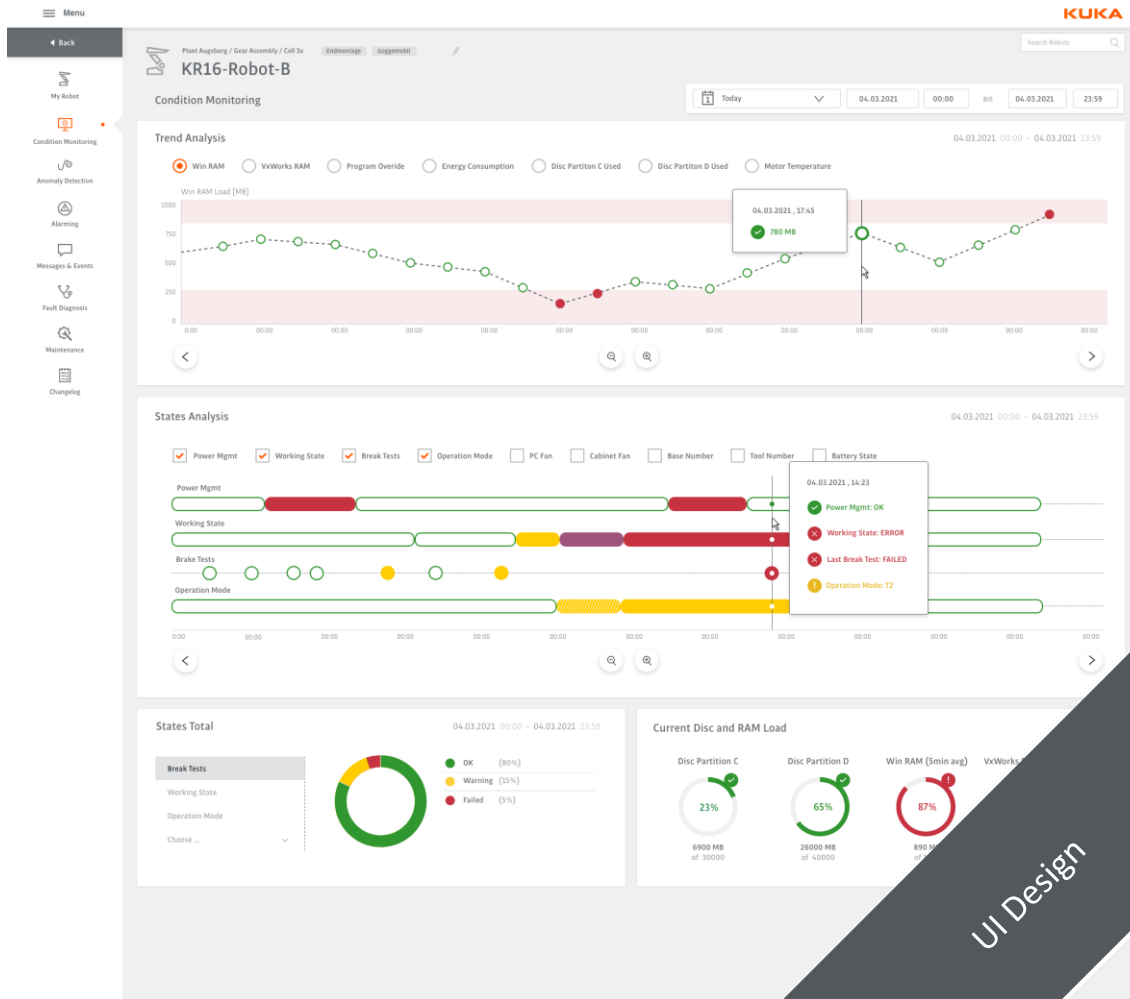
## Condition Monitoring

### Added value

- + Tracking of the robot current condition from remote
- + Helps finding trends, irregularities or root causes

### Features

- Current and historic asset information
- Visualized condition state of robot & controller
- Robot data like brake test results
- Controller data like operation mode, RAM usage, program override ...
- *In future releases: More data points and program specific data, energy analysis*







### Maintenance Manager

The screenshot displays the 'Maintenance Manager' interface. At the top, it shows '64 Robots' and 'Standort: Plant Augsburg'. The main content area is titled 'Maintenance' and includes a 'Flottenstatus' (Fleet Status) section with three indicators: 'Überfällig' (22), 'Anstehend' (22), and 'Erledigt' (260). To the right, a bar chart shows maintenance types: 'Basisinspektion' (12 Robots), 'Elektrowartung klein' (4 Robots), 'Grundachswartung' (2 Robots), 'Elektrowartung groß' (2 Robots), and 'Zentralhandwartung' (2 Robots). Below this is a table of 'Überfällig' (Overdue) tasks.

Robotername	Wartungstyp	Fällig am	Fällig seit	Standort
KR16-Robot A	Elektrowartung klein	01.02.2021	122 Tagen	Augsburg / GearAssembly / Cell3a
Robotername	Elektrowartung klein	01.02.2021	122 Tagen	Augsburg / GearAssembly / Cell3a
Robotername	Elektrowartung klein	01.02.2021	122 Tagen	Augsburg / GearAssembly / Cell5
Robotername	Elektrowartung klein	01.03.2021	92 Tagen	Augsburg / GearAssembly / Cell3a

A dark grey triangle in the bottom right corner of the screenshot contains the text 'UI Design'.

### Added value

- + Scheduling current and future maintenance tasks
- + Identifies maintenance needs of all assets in one intuitive view

### Features

- Fetch maintenance information from controller
- Rescheduling of tasks

## Outlook: Future modules & features

### Future release



#### *Predictive Maintenance*

##### **Added value**

- + **Wear analysis:** On-demand maintenance, less planned downtime, detection of robots with high wear (program optimization) for increased robot lifetime
- + **Anomaly Detection:** Early detection of problems and potential prevention of unplanned downtime, avoid production loss, detection of effects on process (e. g. position error)

##### **Features**

- Wear indicator for gears & motors
- Detection of anomalies (robot required to do reference movement frequently)

### Future release



#### *Process Data Aggregation*

##### **Added value**

- + Track process quality of parts in different process steps
- + Ensure & optimize quality
- + Measure consumable & estimate production costs

##### **Features**


- Compatible to process tech packages (e. g. welding, KUKA.ProcessScreen required)
- Dashboards for quantity of parts (OK/NOK), error sections, consumables
- Notifications in case of errors



## Outlook: Future modules & features (2)

iiQoT.Basic

Future release



**KUKA data connection**


**Added value**

- + Efficient support (e. g. ticket creation)
- + Smooth user experience (integration of my.kuka, Xpert, RobotSelector ...)

**Features**

- Share data with KUKA for diagnosis or to improve services (e. g. Predictive Maintenance)
- KUKA ecosystem integration (marketplace, service data ...)

Future release



**Backup Management**


**Added value**

- + Fast recovery
- + Restore working state

**Features**

- Automatic backup creation
- User defined schedule
- Store data locally (shared folder) or in the cloud

Future release



**Other**

**Added value**

- + **Energy monitoring:** track energy consumption & detect optimization potential to save costs
- + **Cycle time analysis:** track cycle time & detect optimization potential to increase throughput
- + **Load analysis:** avoid misuse of robot & automatic analysis without additional tools



## Modules – value mapping

	Fleet optimization	Fast recovery, troubleshooting	Maximize uptime	Increase efficiency
Asset Manager	●			
Maintenance Manager	●		●	
Messages		●		
Condition Monitoring		●	●	●
Security Monitor	●			
Changelog		●		
Notifications		●	●	
Fault Diagnosis		●		
Predictive Maintenance*			●	
Backup Manager*		●		
Process Data Aggregation*				●

\* in future releases / t. b. d.

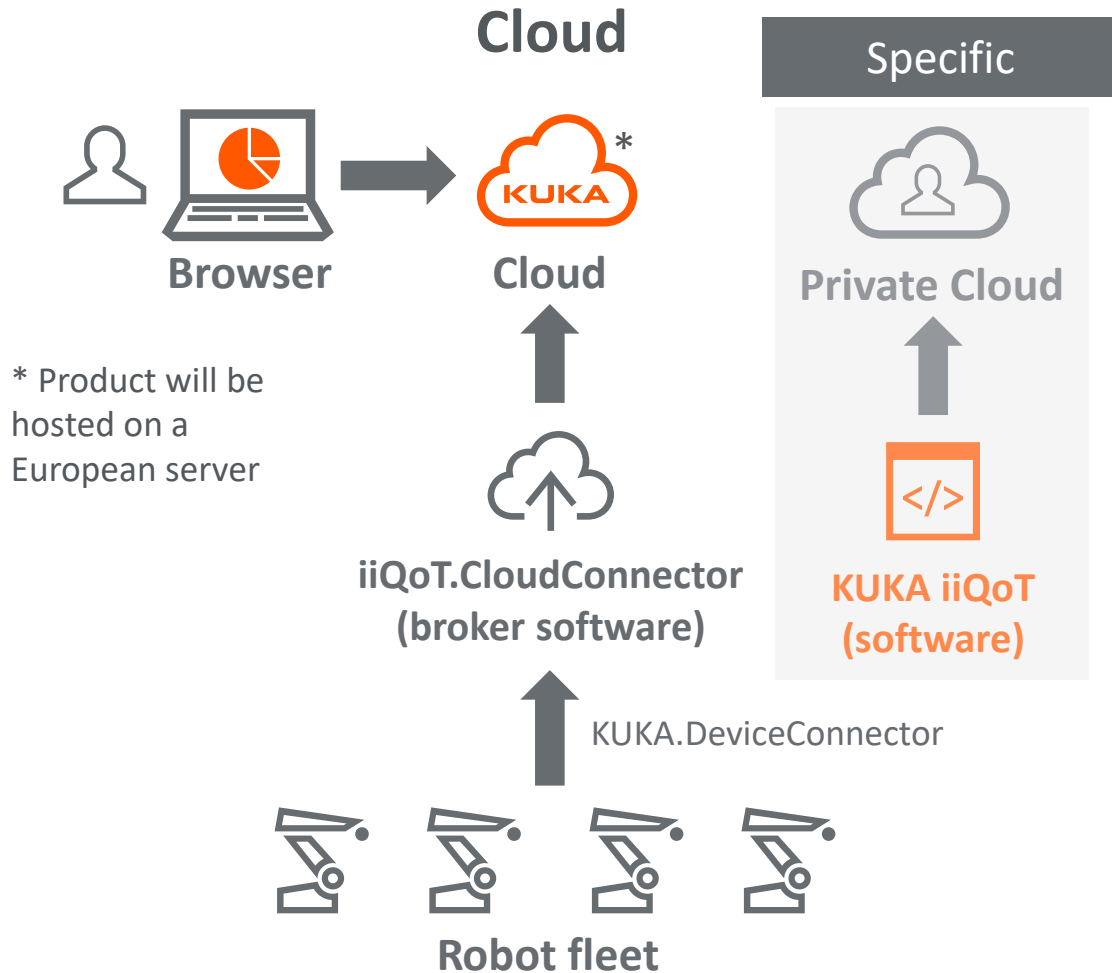


## Personas & jobs

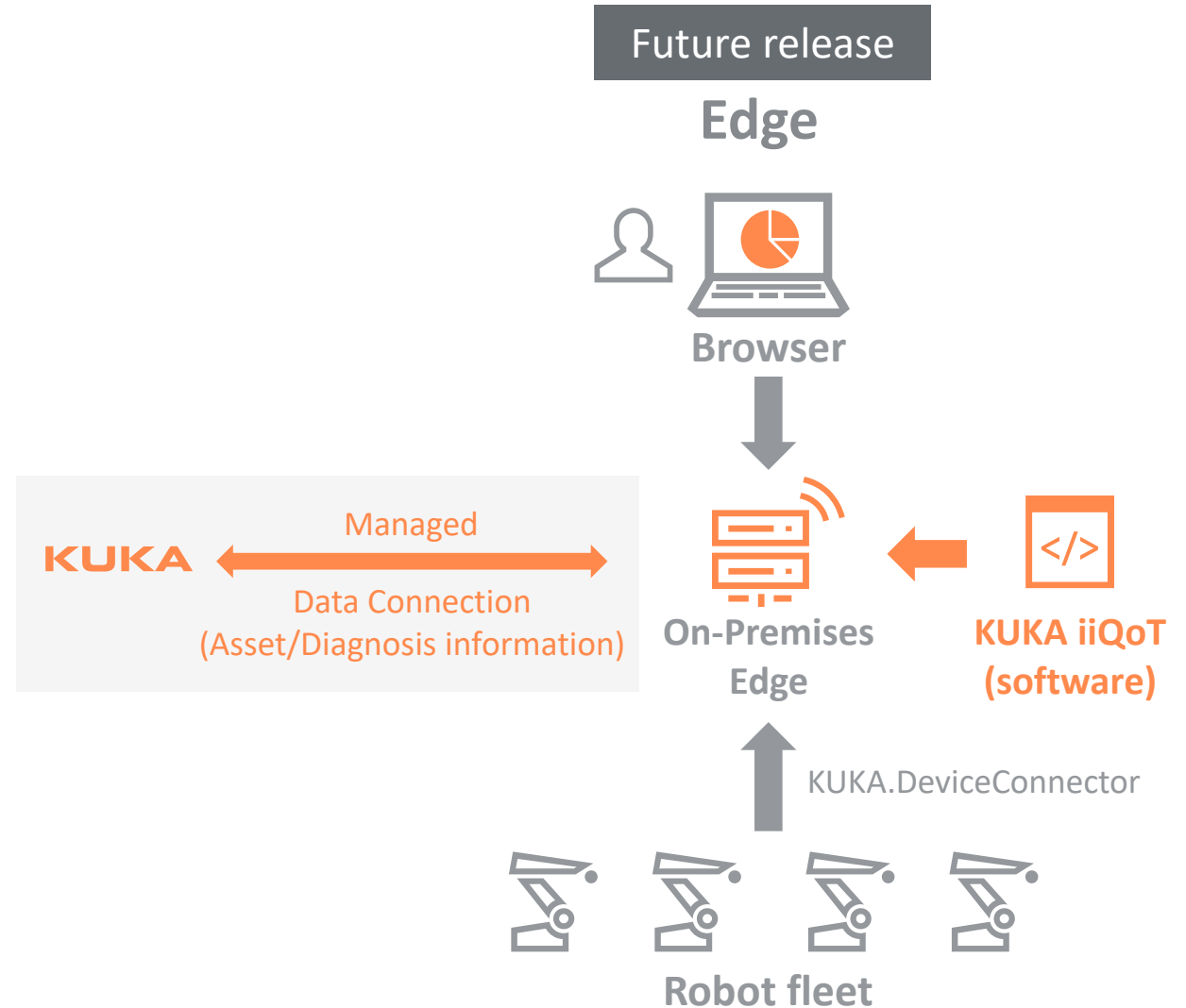
Role	Job
<b>IT responsible</b> (Key stakeholder)	<ul style="list-style-type: none"> <li>• Ensure data &amp; cyber security</li> <li>• Check company policies</li> <li>• Support in integration</li> </ul>
<b>Standardization / OT responsible (cross-plant), Manager Maintenance</b> (Key stakeholder)	<ul style="list-style-type: none"> <li>• Defines OT strategy (cross-plant) and homogenize tools</li> <li>• Collect production requirements</li> <li>• Initiate integration of OT tools</li> </ul>
<b>Plant manager</b> (Key stakeholder)	<ul style="list-style-type: none"> <li>• Ensure productivity &amp; quality of production</li> </ul>
<b>Integrator</b> (Sales channel with own benefits)	<ul style="list-style-type: none"> <li>• Support</li> <li>• Commissioning</li> </ul>
<b>Cell/line commissioner</b> (2 <sup>nd</sup> priority user)	<ul style="list-style-type: none"> <li>• Ensure correct operation of robot (e. g. load)</li> <li>• Ensure process cycle time</li> <li>• Ensure process quality</li> </ul>
<b>Staff Maintenance / operator</b> (1 <sup>st</sup> priority user)	<ul style="list-style-type: none"> <li>• Ensure continuous operation</li> <li>• Ensure consistent asset status (e. g. SW version)</li> <li>• Ensure fast recovery in case of errors or down-times (troubleshooting, root cause analysis)</li> <li>• Early recognition of potential errors &amp; problems</li> <li>• Planning of routine maintenance</li> </ul>



## KUKA iiQoT product architecture



\* Product will be hosted on a European server





## KUKA iiQoT product variants

	Infrastructure provided by KUKA	Infrastructure provided by customer
Cloud	<p><b>Public Cloud (KUKA cloud)</b> KUKA hosted platform, data publisher needed</p> <p><i>First release</i></p>	<p><b>Private Cloud (customer cloud)</b> Customer hosted cloud</p> <p><i>Specific</i></p>
On-Premises	<p><b>On-Premises (KUKA Edge)</b> Data stays on-premises, managed environment</p> <p><i>Future release</i></p>	<p><b>On-Premises (customer hardware)</b> Data stays on-premises, non-managed environment</p> <p><i>t. b. d</i></p>

## Technical prerequisites (Cloud version)

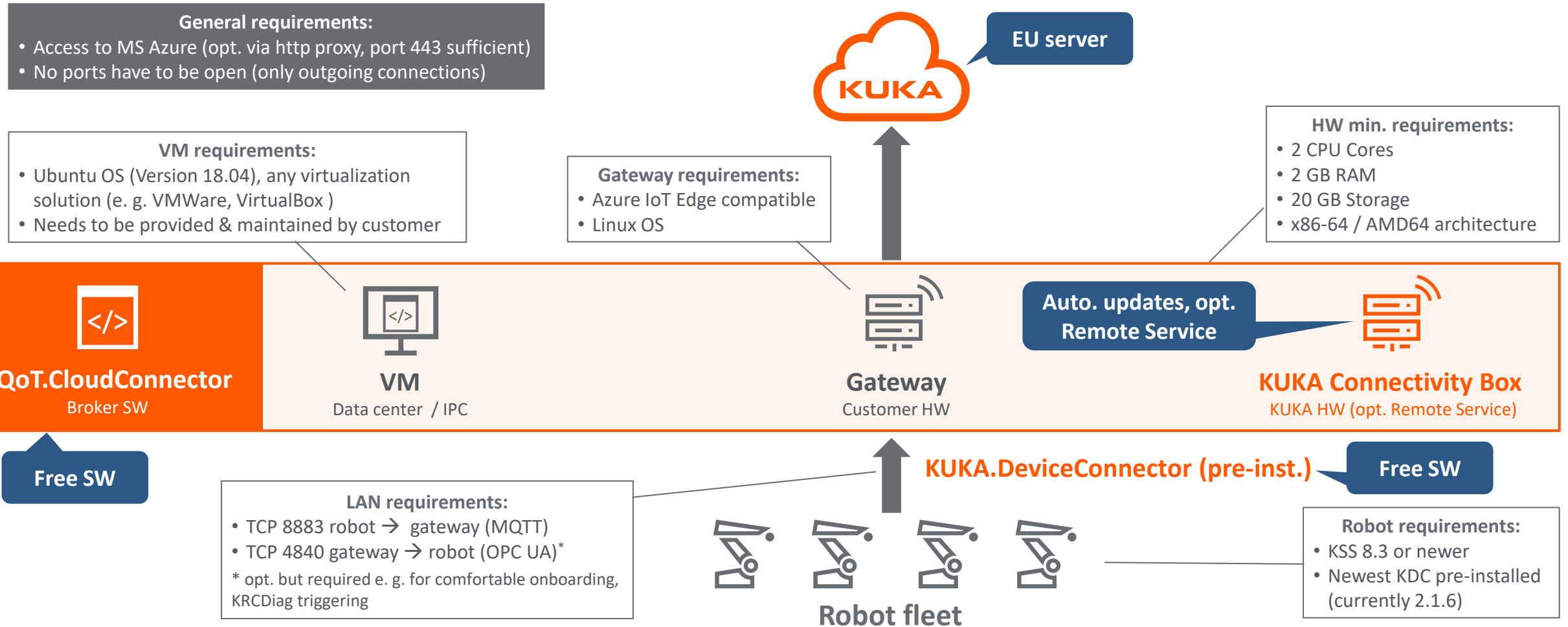


- Cloud based product: free cloud connector/broker software will be provided (KUKA iiQoT.CloudConnector)
- For KUKA robots with (V)KSS and KUKA.DeviceConnector pre-installed
- (V)KSS 8.3 or newer
- Access to European Server





## Technical prerequisites (Cloud version)



## Data security



- KUKA do not share or sell data to 3<sup>rd</sup> parties
- Data will only be used of the purpose of the service (anonymous data will be used for general product improvements)
- GDPR compliant solution



- All services are only hosted in ISO27001 certified data centers in the European union (Microsoft Azure West Europe region)
- All customer data and data transfer is encrypted based on the current BSI recommendations ("Encryption at rest" & "Encryption in transit")
- Single Sign-On support with KUKA central customer identity (my.KUKA)



### Performance & stability

- **Network performance:** < 1 MBit/s per robot for typical use-cases
- **Stability:** KUKA.DeviceConnector is proven for stable operation, uses minimal resources and has no impact on robot production (KRCDiag creation could lead to high resources usage, user is warned)