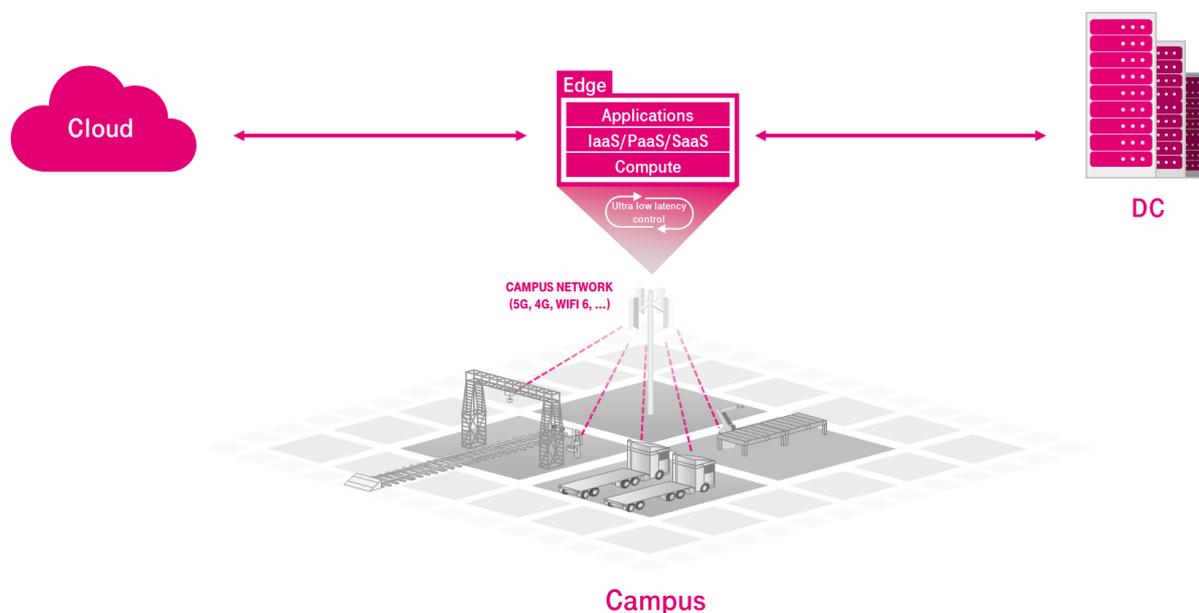




Edge Computing

An edge is a high-end computing device which is installed at the customer's site (the "campus") where the computing power is needed. The edge computing unit is then connected to the relevant devices over any connectivity (e.g. 5G, 4G, Wifi 6, etc.) and can run the applications which previously were deployed on a cloud or on-device. This approach combines some of the advantages of on device processing like real-time-processing, reliability, autonomy and high local data security and of clouds like reduced costs due to centralization and high processing power.



Edge Computing – Advantages

Bandwidth availability and usage

Network bandwidth is improving everywhere. However, the exponential growth in data which is being generated will soon outpace the available bandwidth. **Edge Computing allows for more efficient usage of available bandwidth** through local processing instead of e.g. uploading, processing and downloading huge amounts of data when using a cloud solution.

Reliability

Cloud solutions cannot be used effectively in scenarios where a reliable connection cannot be guaranteed like at oil platforms with a weak and slow internet connections. Digital solutions in those scenarios demand **reliable local Edge Computing processing to be independent from an internet connection** and would else not be possible to realize.

Simple, cheaper devices

Edge Computing enables simpler and cheaper devices as data storage and processing can be realized on an Edge, instead of on the devices themselves. E.g. rendering of an AR/VR-device can be carried out by an edge. The rendered image is then only streamed to the device. Thus, the device-hardware (CPU, GPU) must not be powerful anymore which reduces the required battery capacity, allowing for slimmer, lighter and cheaper devices.

Latency

Converting data into insights and actions as well as control of devices like robots in real-time is often critical in digitized processes. **By using Edge Computing, communication of data at a customer's site happens with low-latency in real-time, since signals only travel small spatial distances.** Clouds in contrast can be located far away from customer's sites and thus disrupt communication of data due to high latency and jitter.

Autonomy

Many IoT solutions require full autonomy since they are part of critical processes or applications. For example, controlled robots must continue to work properly even if the campus loses connection to the internet. **Edge Computing provides full autonomy due it's local processing in a local network and therefore independency from the internet.**

Data Privacy

Some data comes with significant privacy, security and regulatory requirements, e.g. in industries like healthcare. **Since Edge Computing provides local data storage and processing, data never leaves the customers campus which guarantees a very high data security** to meet security requirements.

Data normalization/ pre-processing

Generated data of devices needs to be interpreted. Often data from many different software protocols needs to be normalized and if bandwidth is limited, also pre-processed to efficiently use the available bandwidth when uploading the results to a central cloud database. **Edge Computing incorporates these abilities which saves costs and increases efficiency**

Data filtering/ prioritization

Often only a small part of IoT data is actually relevant. Therefore, redundant or meaningless data needs to be filtered out. **With local processing, Edge Computing reduces data-transfer costs, bandwidth costs and cloud-storage costs,** if for example the data should be saved afterwards in a central cloud database.

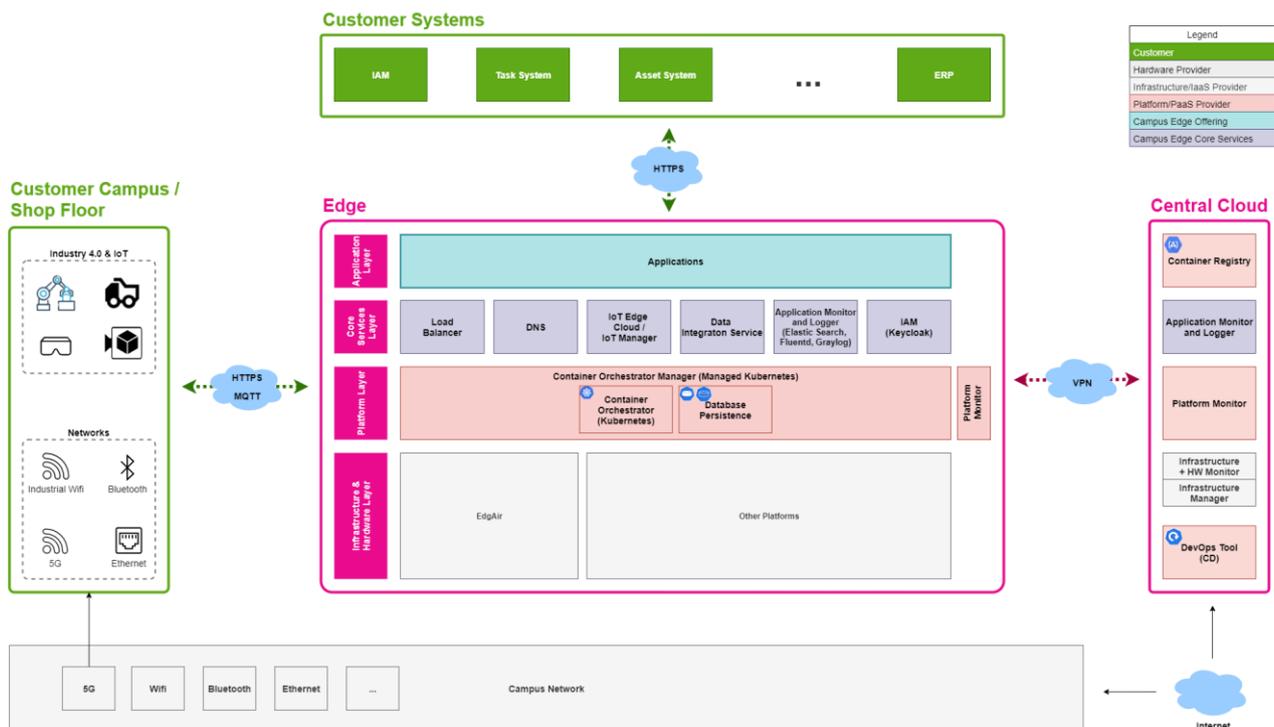
Edge Computing @ T-Systems

In the age of digitization, 5G plays a key role for increasing the independency and intelligence of things. Its enhanced mobile broadband, massive IoT and low latency capabilities enable dynamic and flexible value chains with the inclination to increased autonomy of production lines. This trend is accompanied by the exponential growth in produced data. To turn new innovative technologies like 5G into a competitive investment, companies need to consider accelerating data condensation, data processing and decision derivation to improve their business with the accruing information. T-Systems supports their customers to shape their digital roadmap by combining connectivity, edge computing and solutions based on digital top technologies.

Campus Edge combines Telekom's innovative 5G Campus Network proposition with T-System's manifold Edge Computing offering. With EdgAIR, T-Systems provides an Edge Computing platform for minimal latencies and high computing power. Smooth operation is ensured, and the way is paved for a reliable campus infrastructure. The platform is supplemented by T-Systems integration- and consulting-services, solution implementation- and operation-services, on top solutions as well as Telekom connectivity services to provide an appealing End-To-End Edge Computing offering.

The Edge Computing ecosystem of T-Systems is also compatible with Hyperscaler ecosystems, for example based on AWS appliances. It forms the foundation to incorporate new emerging innovations and solutions of partners to provide customers at any time to benefit from newest technology and digital solutions. This allows the simplified integration of additional uses cases to further increase productivity, automation and flexibility of companies. Also, customers are not bound to 5G but can also use other connectivity on their campus in combination with edge computing like Wifi 6, 4G, etc.. Due to this modular and flexible approach every individual requirement of a customer can be met to offer the right solution.

Campus Edge - Architecture



Partner Scouting

Besides our Computer Vision Challenge, we are inviting every company which believes its solutions fit the benefits of Edge Computing and 5G Campus Networks to apply via the application form on the website from hub:raum for a potential partnership.

Additional Information

Websites

- T-Systems Edge Computing Website ([EN](#) | [DE](#))
- Telekom Campus Networks Website ([EN](#) | [DE](#))

Videos

- Campus Edge explanatory video ([EN](#) | [DE](#))
- Campus Edge explained by VP Stephan Salmann from T-Systems Digital Solutions ([DE](#))
- Edge Computing explained by VP Thomas Weber from T-System Public Cloud ([EN](#))