



## Accelerate your edge applications !

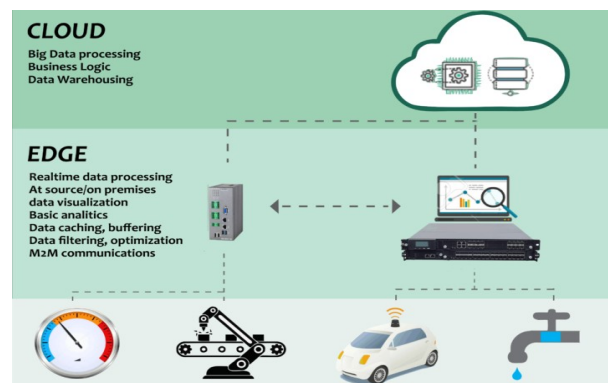
Cloud computing has become a key component of many business solutions, bringing huge flexibility, efficiency and scalability. Its centralized infrastructure for compute, storage and networking provide clear benefits for ease of use, collaboration and business insights.

More and more data gets generated and consumed at the edge of the network, such as data from sensors, camera feeds and mobile devices. Furthermore, there are realities such as latency due to speed of light, and the costs of sending massive amounts of data to the cloud. Those factors have led to the conclusion that cloud and edge computing are complementary.

*Edge computing is part of a distributed computing topology in which information processing is located close to the edge – where things and people produce and consume this information.*

*Gartner Inc.*

Accelerated Edge Computing enables real-time responses on changing conditions, e.g.: controlling a traffic light based on traffic conditions or steering a self-guided vehicle safely across a warehouse or a busy factory floor.



## Dedicated solutions for the Edge

Compute solutions can not be replicated directly from the cloud to the edge. Many edge applications demand dedicated solutions that cope with strict requirements such as: physical size, environmental conditions, energy efficiency, and product longevity. In addition, edge compute systems often need market-specific interfaces and acceleration to handle the massive amount of data from networks, cameras and devices.

### Typical Edge Applications

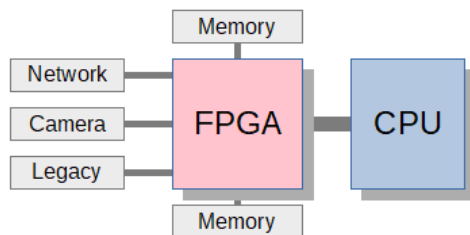
- Machine vision
- Network protocol off-load and aggregation
- Security and VPNs
- Machine learning and inference
- Mobile edge compute

### Acceleration with dedicated hardware

There are many reasons for hardware acceleration in edge applications, for example:

- Low-latency enables real-time response to local events
- Low power: using specialized hardware to off-load dedicated tasks from a generic CPU
- Integrated network ports or other legacy interfaces lowering power and enabling compact equipment
- Machine learning algorithms leverage specialized hardware
- Reduce network bandwidth and costs

A standard x86 based server combined with an PCIe based off-load engine creates a powerful acceleration platform. Depending on the application, a graphics card or a solution with a Field Programmable Gate Array (FPGA) delivers the required performance boost. FPGAs are typically used to resolve complex calculation tasks with unsurpassed performance due to massive parallel compute capability and optimizations for data-flow processing.



Traditionally the challenge has been the difficult programming model for FPGAs; but that is solved by AimValley's Accelerated Edge Computing team and tools.

[Learn More  
Accelerated Edge Computing](#)

### Benchmarking

AimValley's Accelerated Edge Computing team uses benchmarking, profiling and tuning tools to quickly identify performance bottlenecks in your existing applications. And offers solutions and services to migrate the key latency or bandwidth critical sections for hardware assisted off-load to an FPGA-based accelerator card. Alternatively, a customized hardware platform is built with uniquely differentiated interfaces and specifications.

Processing and throughput improvements by a factor of 5 or more are possible, depending on the algorithm. Latency and power consumption can be reduced significantly when compared with graphics cards.

### Why AimValley?

AimValley is a reliable provider of Edge technology since 2003, delivering solutions for:

- High speed data processing applications
- Complex FPGA-based accelerated systems
- High speed, low power hardware equipment
- Robust embedded software
- Early adopter of Acceleration Technology

AimValley understands the full complexities as well as the subtle nuances of designing great edge solutions. We excel in building complex systems that are part of your product in the fields of Factory 4.0, Big Data, Healthcare and Transportation markets. Our combined skills represent all the important aspects required for the development of end-to-end systems.

Our customers enjoy the benefits of working with a strong team with more than 2 000 years engineering experience. AimValley is a trusted partner of Tier 1 customers in Telecom and Industrial markets and has shipped more than 100 000 products.

### Quality Focus

- Outstanding track record of on-time delivery
- Best in Class Designs – Time, Budget & Quality
- ISO9001, ISO140001, Ecovadis Platinum CSR