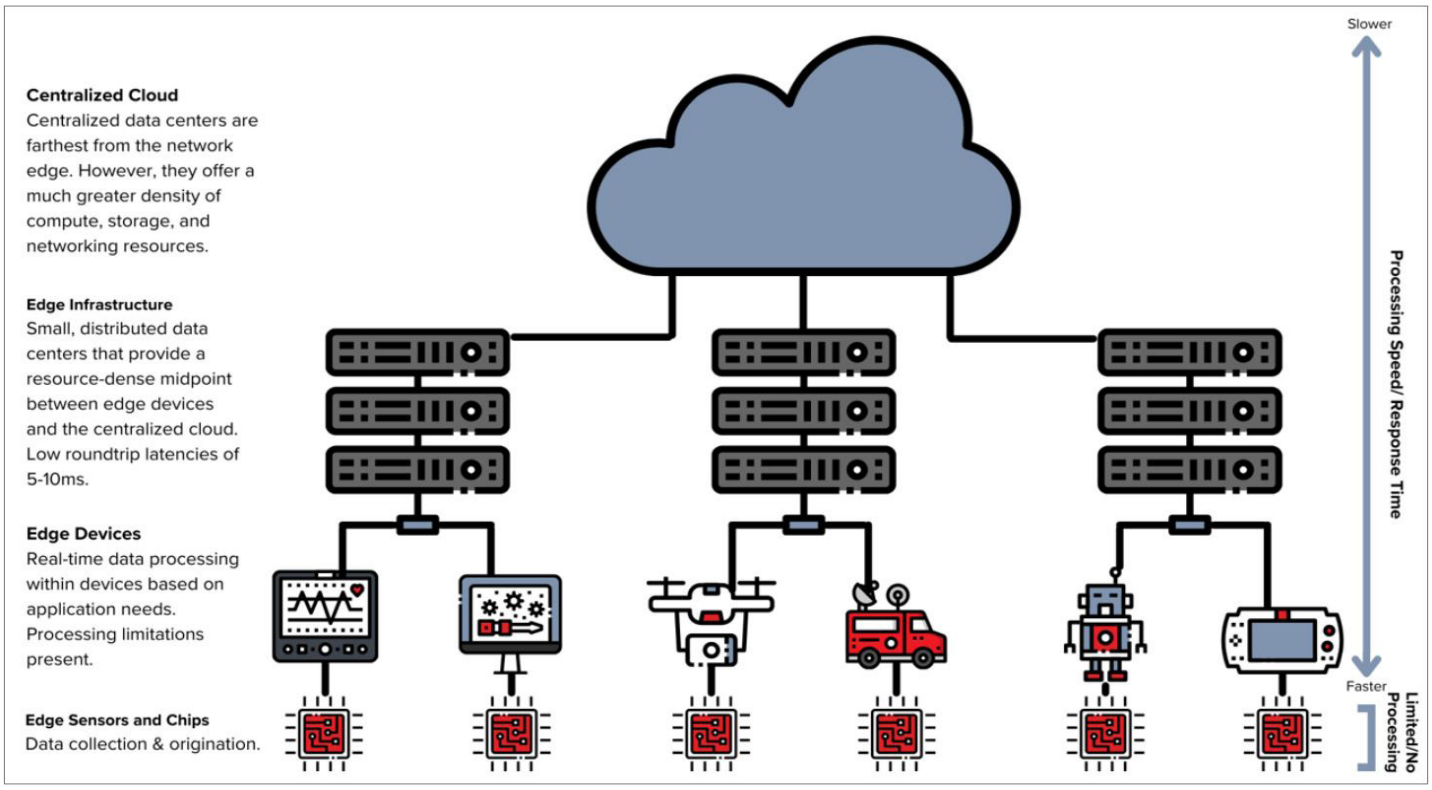
Data at the Edge (D@tE)

The past decade has seen significant data generation around the globe. The market research firm, International Data Corporation (IDC) has predicted that the amount of data generated globally will grow from 33 zettabytes today to 175 zettabytes by 2025 for a compound annual growth rate of 61 percent. This growth will likely be fueled by billions of endpoint devices or Internet of Things (IoT) sensors, handheld devices, and the shift to "real-time" data instead of data that is stored and acted upon later. The Edge Computing Ecosystem is Comprised of Four Primary Areas shown below.

Five Technology Focus Areas

Cognitive Cyber for Physical and Digital Platforms	Cognitive Cyber
Mission & Enterprise Information Technology	M/EIT
Analytics, Automation, and Artificial Intelligence	A^3
Intelligent Systems Engineering	ISE
Data at the Edge	D@tE

Data volumes will continue to grow and likely compound at unprecedented rates with expected increases in mobile devices. Currently, it is difficult to transport the predicted volume of data over the global networks as endpoint devices have outpaced network and infrastructure capabilities. Cloud computing has allowed processing and storage of the data at scale, but not all data can be or needs to be transported to a "central" cloud. This has led to the evolution of multi-cloud, hybrid cloud, and edge or distributed cloud ecosystems.



Concurrent with the explosive growth in data, some federal agencies have moved from “Cloud First” to “Cloud Smart” policies. One likely reason for the policy shift is the realization that future technological ecosystems will be a mix of cloud and edge computing. Edge computing allows the network to securely process data and provide analysis closer to the point of creation. Future ecosystems will likely be driven by socio-economic requirements, radical digital changes in communication infrastructure, and the explosion of growth in edge devices.

Formed in 2020 as one of five key Technology Focus Areas in its Innovation and Capabilities Office, ManTech’s D@tE team is chartered with providing data assurance solutions that enhance data management and security protections in tactical environments by leveraging new edge computing technologies. This team builds upon the company’s domain knowledge in the latest technologies such as cloud/edge/fog computing, 5G communications, and the IoT in the federal marketspace to enable faster, more comprehensive data analysis. Adoption strategies for these technology areas are frequently employed in the commercial marketspace but remain underutilized in the federal sphere.

One of the initial product offerings of the D@tE Technology Focus Area is ManTech’s proprietary Secure Tactical Edge Platform (ST3P™). Built from ManTech internal research and development, ST3P functions as a micro-data center, vendor neutral, appliance that behaves as a “Cloud-in-a-Box.” ManTech’s ST3P is built on open architecture standards that leverage the benefits of microservices, providing clients with improved scalability, enhanced data security, increased agility, and support for DevSecOps.

To enhance these offerings, ManTech developed an industry-leading multi-cloud management platform that provides end-to-end visibility, presented in a single-pane-of-glass management console. Fernglas™ is a unified display that provides many unique capabilities and features, including the ability to modernize, containerize and deploy applications during migration to the cloud, fully automate straight-through provisioning, and manage cloud environments. All of this helps clients with governance, enhanced cost management, continuous compliance, and additional operational data in an easy-to-use manner.

Any organization’s ability to execute its mission depends on the quality and training of its people. The D@tE TFA is working with various training-focused groups such as ManTech University (MTU) to ensure the training we provide our employees and customers is current and relevant. Content is curated under a Capability Academy. Through strategic partnerships with university and industry providers, such as Purdue University, MIT, University of Detroit Mercy, Skillsoft, and more, ManTech offers multiple programs to build skills and capabilities in all development levels and at no out-of-pocket cost to employees. This D@tE Capability Academy lines up learning opportunities to business objectives, going beyond solely technical and functional skills. More than a program, this is a corporate investment in our employees’ future and aligns directly to our culture of career enablement.

To further support our customer needs and their varied missions in the 5G arena, ManTech invested in a 5G lab in Stafford, VA, where we are able to provide a contained environment to support multiple use cases that include:

- 5G Bubble, a private 5G network for Government to perform experimentation
- Enabling tactical edge cloud with 5G, using ST3P
- AR/VR-based immersive training experience for warfighters
- Smart warehouse, based on the Internet of Things (IoT) and AI/ML
- Smart bases and ports, based on IoT, AI/ML and ST3P
- Combat Cloud™, a joint broadband tactical network for ground and amphibious forces, air and unmanned systems
- Cyber offensive and exploitation capabilities
- Remote maintenance, AR/VR based maintenance, repair and overhaul

Data at the Edge:

- Fernglas™ – multi-cloud management platform
  - Single Pane of Glass (SPOG)
  - Automated provisioning and multi-cloud orchestration
  - Cross-cloud management and resource optimization
  - Cloud migration at speed and scale
  - Zero trust-based identity, security and compliance
  - AIOps inventory and classification
  - AIOps monitoring and analytics
- Secure Tactical Edge Platform (ST3P)
- 5G Innovation Lab
- ManTech’s Combat Cloud

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