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Power Intelligent Outcomes With Data At The Edge

FEATURING RESEARCH FROM FORRESTER

Innovate With The Forrester Model
For Edge, IoT, And Networks



Enterprises in every industry are looking for ways to improve productivity, efficiency, and experiences: retailers want to provide seamless omnichannel interaction with customers; farmers need more automation in the field or facilities for enhanced crop yield; and healthcare providers must deliver more effective and efficient patient care. Enter edge computing. At the edge, retailers can offer frictionless customer experiences through use cases such as foot traffic insights and queue management. Farmers can use autonomous equipment with sensors to deliver precise crop management, while distributors and grocers can preserve the fresh flavor and color of produce until it reaches the customer. Healthcare providers can employ remote monitoring and device management to improve patient care and outcomes.

Extending enterprise use cases and applications to capitalize on data at the edge is no longer a novelty. It is a strategic imperative for enterprises of every size to build and sustain a competitive advantage.

To enable a multitude of applications and use cases at the edge, organizations should use a combination of the three key technologies in Forrester's tech triad as building blocks:

- **Edge computing.** Edge computing enables local analysis of data from Internet of Things (IoT) devices, sensors, cameras, and the like, so decisions can be made immediately where speed matters most. Edge computing solutions extend enterprise operations beyond the corporate data center, empowering organizations to design and flexibly deploy software between central and local sites, integrate endpoint environments into their IT estate, reduce network latency, and deliver near real-time analytics and rapid capacity scaling. Edge computing is an essential element of digital transformation and modernization across many enterprises, especially when optimized with 5G networks and modern application data management. Edge computing can be used for everything from in-hospital patient monitoring to assisted driving solutions.
- **IoT.** IoT refers to intelligent endpoints that are connected to the network. IoT endpoints may be stationary or on the move: a machine, vehicle, railcar, refrigerator, mobile phone, and so on. IoT endpoints produce massive amounts of data that can be analyzed to deliver valuable insights that improve business operations and modernize customer experiences. For example, in healthcare, wearable devices provide real-time remote patient monitoring; in retail, global positioning system (GPS) sensors can improve supply chain management; and in the energy sector, smart meters track energy usage and help predict demand.
- **5G networks.** 5G is much more than just the generation following 4G — it is a revolutionary communications upgrade that bridges IT and telecom infrastructure under a horizontal cloud-based architecture for unprecedented economies of scale. 5G can use more frequency bands and deliver lower latency and higher throughput to connect virtually everyone and everything —

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including people, machines, objects, and devices. It promises to drive the development of game-changing applications at the edge, enabling much more widespread use of IoT, artificial intelligence, and real-time data analytics for effective decision-making.

While edge computing, IoT, and 5G networks all bring value to organizations, the synergies realized from the overlap of these three technologies outpaces each of them individually.

Despite these benefits, organizations feel the growing pains of edge implementations that are siloed, highly segmented, and operating on separate platforms. The time is right for enterprises to simplify their edge by generating higher-value insights where they are needed; consolidating use cases, infrastructure, and data; and protecting assets with intrinsic security.

Innovate With The Forrester Model For Edge, IoT, And Networks

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By Michele Pelino, Andre Kindness with Glenn O'Donnell, Renee Taylor, Diane Lynch

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Summary

A new tech triad of edge computing, internet of things (IoT), and networks forms core platforms and drives new value for stakeholders. Each of these tech categories can stand alone, but true transformative value lies in new services, applications, and solutions emerging from the overlapping capabilities spanning two or more of these three component technologies. The new solutions can serve a particular vertical or be used horizontally across multiple industries. This report helps tech leaders determine the type of technology solutions to serve a business, with platforms created by the right triad blend, practices to optimize the value extracted from the triad, and partners to enrich triad capabilities.

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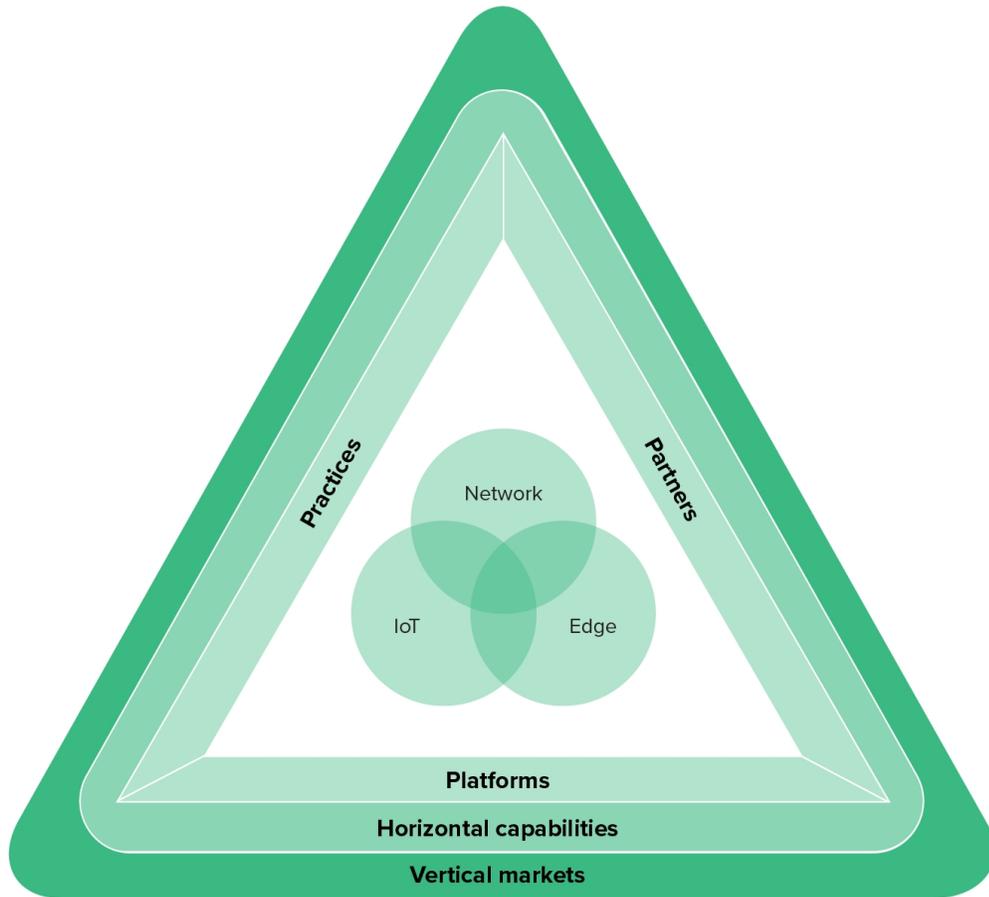
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Core Components And Functions Of The Tech Triad

Each component of the triad — edge, IoT, and networks — has been delivering value for different time periods while being deployed and managed by different teams. By combining two or more of the elements, businesses unlock new opportunities and value, which transcend the creation and delivery by one group, one segment, or one part of the market (see Figure 1). Traditional tech titans, telcos, industrial giants, cloud providers, emerging players, and partner ecosystems have arisen in this new tech triad. As a result, internal and external partners will align and shift to create new platforms. Current practices have already started to evolve as the market matures. These platforms, practices, and partners can create solutions with horizontal capabilities or for vertical markets to power horizontal and vertical applications, use cases, and security policies at a local, regional, and global level.

Figure 1

The Forrester Model For Edge, IoT, And Network Innovation



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Edge, IoT, And Network Elements Create The Tech Triad

Edge, IoT, And Network Elements Create The Tech Triad

This Forrester Decisions model builds on three overlapping foundational pillars:

- **Edge.** Edge computing solutions are expanding beyond the corporate data center to include a variety of endpoint environments. Edge endpoints and endpoint enablement resources manage and analyze localized data and empower near-real-time insights, engagement, and automation within physical proximity to endpoint

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devices and customers. These edge solutions include edge management and intelligence software that runs on or near IoT, mobile, and other endpoint devices so actions can be completed immediately. Assessing which data should be processed at the edge environment versus what's sent back to the cloud or data center for advanced analytics processing is an important consideration for use cases in many vertical markets.

- **Internet of things.** IoT technologies create a two-way relationship between connected things in the physical world and the digital world. Firms often use IoT technologies to upgrade their products, transform operations, and gain insights about real-world events. IoT-enabled products have integrated or attached electronic computing and communications to send data or receive commands. Most IoT-connected assets include sensors to record conditions, send sensor readings or analyses to a remote software program, and receive software updates. Some include actuators that local or remote software commands can trigger to change a physical-world state.
- **Network.** A diverse collection of LAN, WAN, and personal-area network (PAN) technologies and transports support your firm's strategic, business, and operational applications and services. Traditional enterprise networking transport media such as RJ45 copper wire, fiber, Wi-Fi, and cellular were designed and deployed to transport information from servers and storage appliances to office employees working at computers and sitting at desks. PCs or servers reside in corporate offices and data centers. IoT networks and devices are often located in new, unique, and severe environments to ingest information and context through sensors and take actions in the physical world through actuators based on analytics-driven insights.

Platforms, Practices, And Partners Facilitate Tech Triad Deployment

Businesses can extract new revenue streams, new business opportunities, or improved operations when the company creates a strategy that takes into account the “three P’s” of a future fit technology vision:

- **Platforms to power efficient and differentiating applications and solutions.** Platform environments enable firms to efficiently develop and support various applications, software, and digital insights using hardware, software, network, and digital technology components. The foundations of many platforms are standards that simplify key functions like connecting to various wireless and wireline networks, managing and securing the fragmented array of devices and applications, enabling application development, and analyzing captured information to create actionable insight. These platform solutions must often deliver key functions at scale in edge and

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cloud environments.

- **Practices to help facilitate seamless, secure implementation and operations.** A wide array of technology leaders, business professionals, and operations managers guide requirements for and deploy tech triad solutions. These stakeholders need tools to help identify how new technologies impact worker activities, operational processes, employee experiences, and customer experiences. Firms also need tools, frameworks, best practice guidance, and KPIs to assess the impact of tech triad initiatives on employee skill set requirements, mission-critical operational processes, and customer experiences.
- **Partner ecosystems to ensure comprehensive solution deployment.** Partner ecosystems are a critical requirement to successful deployment of tech triad solutions. Vendor and service provider participants, including tech titans, telcos, industrial giants, cloud providers, and software platforms, offer key elements of tech triad solutions. However, no single vendor can provide all the hardware, software, network, and technology components necessary to deploy end-to-end technology solutions on their own. Tech triad vendors, network providers, and services firms often establish partner ecosystems to create these end-to-end solutions to address key horizontal and vertical IoT and edge use cases.

Vertical Markets And Horizontal Capabilities Drive Tech Triad Requirements

Evaluate your tech triad requirements and find the right three P's by first identifying relevant horizontal and vertical applications, solutions, and use cases to address your firm's strategic, operational, and business priorities. Apply these well-rounded solutions to:

- **Vertical markets.** Enterprise stakeholders often initially focus on identifying relevant applications and use case opportunities within their specific industry or vertical market. For example, healthcare providers frequently use tech triad solutions to maintain and manage the status and operational performance of medical equipment. Business stakeholders should also evaluate specific vertical use cases that are relevant to their firm's priorities and operational processes.
- **Horizontal capabilities.** Some horizontal capabilities apply to many organizations. They may focus on enhancing critical operational processes such as building or facility management or providing cost-efficient use of resources such as energy management or security and surveillance. To determine the appropriate mix of use cases and applications to pursue, decision-making stakeholders must evaluate alignment with corporate strategic priorities and technology initiatives.

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Forrester Research, Inc., 60 Acorn Park Drive, Cambridge, MA 02140 USA
Tel: +1 617-613-6000 | Fax: +1 617-613-5000 | forrester.com

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HOW DELL TECHNOLOGIES CAN HELP

With Dell Technologies by your side, you can leverage edge, IoT, and 5G networks to deliver remarkable business outcomes as your edge expands to include more use cases, data, applications, and locations.

For two decades, we have helped enterprises simplify their edge to generate more value where speed matters most. We can help you generate insights where you need them, consolidate as you expand, and bring intrinsic security to the edge.

Our extensive experience with enterprise and OEM customers and partners influences the design of the industry's broadest portfolio for the edge. This portfolio supports evolved practices and horizontal and vertical use cases with a versatile, agile, scalable, and intrinsically secure foundation for enterprise success at any edge. And our commitment to open 5G helps enterprises build innovative experiences that inspire customers, employees, and partners.

For more information about how our customers simplify their edge, [visit the Dell Technologies digital transformation library](#), or [learn more about edge solutions](#).

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