5G: Real-time operations
at the enterprise edge

By bringing technology resources closer to the end user, 5G supports
key elements of modernization, including cloud and edge computing

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5G is the first
telecommunications evolution
that is cloud-native. The
technology provides the ability to
deploy applications, process data
and dynamically move the compute,
application and enterprise experience
into a cellular environment. In addition,
5G makes it possible to connect devices
over non-standard radio frequency
interfaces and position application
functions close to the edge.

We typically think in terms of
having public, private and hybrid cloud
environments. However, there are new
models of how organizations can use the
cloud topology to intelligently put data in
the right place. Co-location places data
in the cloud but not in any specific cloud.
Agencies could put data in a neutral
interconnect between many public
clouds or in a private data center.

By creating high-speed links between
a set of public clouds and a private
environment, 5G enables agencies to
deliver better performance and a more
integrated cloud experience for users.
They also have access to data across a
set of clouds while providing a variety
of services and maintaining control of
that data.

The era of real-time analytics

In the past, government agencies
didn't have many real-time tasks to
manage. But now we are moving into
the era of machine learning, artificial
intelligence, real-time analytics, high-
performance telemetry, management
tuning and dynamic infrastructure. It's
important to make sure that data and
processing exist in a place that can
operate in real time, and that place is
not the enterprise data center or even
public clouds.

Instead, real-time operations should
happen close to where users are — at
the enterprise edge. 5G environments
have an edge very close to the mobile
user, maybe in the cell site itself. Other
edges exist further into the backhaul
and create an aggregate set of
compute and processing capabilities
that bring this next-generation
intelligent connectivity and processing
into the mobile experience.

Furthermore, multi-access edge
computing (MEC) considers how
content and applications may be moved
to the edges of the network — often at
a cell site or a pre-aggregation site in a
mobile network — to provide latencies
that are lower than would be possible
when services are centrally located.
MEC instances can also be placed
into network slices so that a user
community accessing the same content
source or application can be redirected
to a local version close to the edge.
Likewise, elements of the packet core,
currently a fixed architecture, can also
be relocated or co-located on edge
compute functions, removing latency
from the session.

That approach also provides

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a mechanism for enhancing or maintaining an organization's security posture and performance in an ever-changing mobile environment — for example, through the implementation of private mobility networks that leverage both licensed and unlicensed spectrum.

How agencies can speed their adoption of 5G

The most critical thing agencies can do at this time is identify their business and mission objectives. Doing so will allow them to narrow down the scope of their 5G needs and understand which partners are required to complete a successful proof of concept. Agencies should also leverage local supply chains where possible for logistics and cybersecurity reasons.

5G is the aggregation of a multitude of technology areas converging at once, and it can be overwhelming to keep track of all the details. At Dell, we've spent a great deal of time focused on establishing, vetting and maintaining our supply chain for 5G support. We're eager to help agencies with this transformation. ■

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