



How to Get the Best Data and Results from AI

MARKET TRENDS REPORT



Executive Summary

Detecting and preventing fraud, waste and abuse. Improving workforce productivity. Preventing bad actors from infiltrating government systems. Making fast, accurate decisions that can help prevent lives from being lost. In one way or another, most agencies are using artificial intelligence and advanced analytics to solve problems. It's so important that the White House has created the National Artificial Intelligence Initiative Office to oversee a national AI strategy and coordinate AI research and policymaking.

Agencies today clearly understand the growing importance of AI, and are doing their best to incorporate it whenever possible. Today, that value is realized mostly in individual offices, but is often more elusive at the agency or department level. To get the most value out of AI, it must be usable at the enterprise level. That means it must be able to support users not only in the data center, but in the field and at the edge. And that can only occur by moving from a centralized to distributed AI infrastructure.

With a distributed AI architecture available on demand, agencies can ensure that all data required for effective analysis is available, that AI models can be trained and inferred (i.e., put to work) quickly and that data remains fully protected.

To learn more about how agencies can get the best results from AI, GovLoop has teamed with Verizon and Equinix. By combining Verizon's high-speed network and Equinix Fabric, agencies can improve the use of AI from the hybrid cloud to the edge.

By The Numbers

61%

of government business leaders say AI is at least moderately functional in their agencies.

4

Where state and local governments rank broadband and wireless connectivity among important priorities.

38%

of government IT specialists plan to use AI to improve analytics.

1

Where state chief information officers rank AI on the list of the most impactful emerging technologies over the next three to five years.

18%

of organizations say they can truly take advantage of unstructured data today.

75%

of large enterprises will be using at least four low-code development tools for both IT application development and citizen development initiatives by 2024.

\$1.2 trillion

The value data and analytics could generate if embedded at scale in the public and social sectors.

“AI has the potential to help government mitigate fraud, reduce errors, and lower the cost of paper-intensive processes, while enabling collaboration across multiple divisions and agencies to provide more effective and efficient services to citizens.”

- AI Playbook for the U.S. Federal Government (published by the American Council for Technology and Industry Advisory Council)

AI Demands a New Approach to Infrastructure

Challenge: Widely Dispersed Data

In most cases agencies rely on data from data centers for AI projects. But to get the most benefit from AI, agencies need to be able to rely on complete data sets and incorporate data from the field and edge devices while ensuring privacy and security. The challenges include:

- **Ensuring all data is available, accounted for and valid:** An AI model is only as good as the data it has to work with. Using incomplete or inaccurate data simply won't provide accurate results. For example, the CDC can't provide accurate data to the public on COVID trends without incorporating full and complete data from municipalities and states, and a state's transportation department can't improve congestion without the right data from local jurisdictions. It's also important to understand the lineage of all data an AI model will use. Without validating data integrity, it's impossible to know if the data has been corrupted.
- **Collecting and processing vast amounts of unstructured data at the edge.** Unstructured data — data from audio and video feeds, geospatial and weather data, sensor data and communications data — is growing rapidly, and these data sets are often crucial for training AI models. Because unstructured data is usually very large in size, many agencies are choosing to collect and even process that data at the edge — on the battlefield, in the hospital or in any number of micro data centers at remote sites around the world.
- **Getting access to external data sources:** Increasingly, organizations need access to multiple external sources of data in order to improve the accuracy of their AI models. These external data sources are spread across public clouds, private data centers, data brokers and from streaming devices from the edge. Thus, agencies need secure and high-speed access to these external data sources.

Solution: A Distributed AI Infrastructure

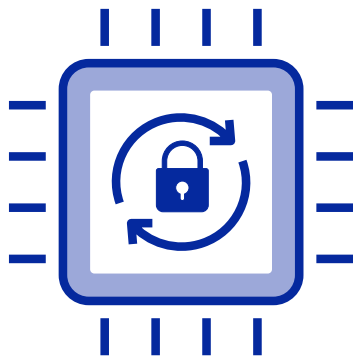
Agencies need a flexible AI architecture available where and when they need it. In most cases, that means the typical centralized AI processing model isn't as effective as it once was. Instead, more agencies are choosing a distributed model, where they can train and deploy their models across multiple clouds, data centers and different types of edge locations.

The distributed model brings the algorithm to the data, resulting in better performance, reduced latency and lower costs. For example, one airplane can generate more than four terabytes of data per day. The centralized method would require transmitting large data sets from multiple planes to a central location, which would take several hours at minimum. With the distributed model, local AI models get built at the edge and then these local model weights are aggregated at a central location to build a global model.

“As the amount of data that gets generated at the edge increases, it is pertinent to move AI training and inference processing to the edge for cost, performance and privacy reasons” said Kaladhar Voruganti, Senior Fellow in the CTO Office at Equinix.

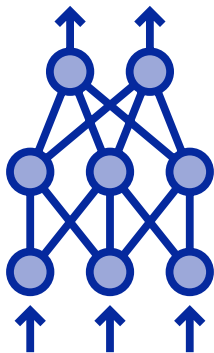
Another important advance in AI modeling is the ability to spin up instant AI infrastructure on demand. That means that when a model needs to be created or trained, agencies can access all AI computing, network and storage infrastructure necessary at any location required, along with the orchestration services to move data and AI models between distributed sites. This can help agencies avoid having to buy and maintain the infrastructure necessary for AI training and modeling while providing the cloud-like experience they're looking for.

Best Practices in Building an AI Infrastructure



Look for an AI infrastructure model with built-in security.

AI models are only as good as the data they have, yet agencies are reluctant to share data and algorithms because of security concerns. To overcome this significant hurdle, look for an AI infrastructure model with security built in at every level — the control plane software zone, the provider/consumer data exchange zone and the data provider’s secure repository. With this approach, it’s highly unlikely anyone could access data being exchanged in the data exchange zone or take raw data out of the pipeline. Another way to ensure security is through the federated model, which brings data and algorithms to a neutral exchange location. With this method, raw data never leaves the premises.



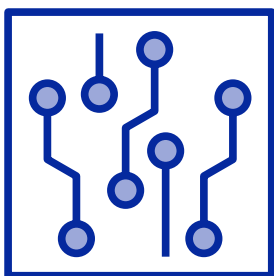
Stop AI bottlenecks with smooth connections.

The best way to avoid bottlenecks is by ensuring your provider can make seamless connections between whatever Multiprotocol Label Switch (MPLS) or Ethernet private networking services agencies are using to power their cloud infrastructure. “Having a common network platform where there are no barriers to the free flow of information allows for multiple streams of information from multiple agencies or departments within an agency in a timely manner,” said Bryan Schromsky, Managing Partner for Federal Government and Public Safety at Verizon Public Sector. This capability will become even more important to agencies over time as newer technologies like 5G, which requires very low latency, become more popular, he added.



Stick to agreed-upon data governance rules.

Data-sharing is essential for AI model accuracy. Without specifically defined and enforced processes, roles, policies, standards and metrics, agencies can’t be sure their data will be protected effectively and used properly by the consumers of their data. The key, Voruganti said, is for all agencies participating as part of a consortium to work with the same previously agreed-upon data governance rules.



Look for simple tasks, not just big ones.

While agencies look to AI to enhance mission-critical capabilities, improve cybersecurity and speed research and development, there is plenty of low-hanging fruit ripe for AI intervention. Analyzing the right data sets can help automate repetitive and tedious tasks, ensure buses remain on schedule, help medical staff triage patients, classify emergency calls based on urgency, improve citizen service with chatbots, reduce traffic congestion, speed application processing and much more.



Use Cases for a Distributed AI Infrastructure

There are countless ways agencies at all levels of government can benefit from a distributed AI infrastructure. Here are few examples:

Protecting citizen health: At a local level, parents want to know whether it's safe to send their children to school without masks, and when they might be eligible for vaccination. Municipalities want to know how much they can open up their cities, and states want to know what rules to enforce. Coordinating COVID response takes communication between federal agencies like the Centers for Disease Control and Prevention and the Department of Health and Human Services, along with hundreds of local and state authorities. Gathering and analyzing data from all of these entities is the perfect situation for distributed AI.

Making real-time battlefield decisions: When a situation arises somewhere in the world that may require U.S. intervention, there is no time to waste. All relevant data must be gathered and analyzed, often on the battlefield, and the results communicated in seconds. The decisions can be as broad as whether to attack, or as narrow as determining which type of weapons to use. A distributed AI infrastructure that can collect information from multiple locations and process it at the edge — on the battlefield — can mean the difference between mission success and failure.

Optimizing the smart city concept: Smart cities — cities that use information and communication technologies to improve operational efficiency, citizen welfare and government services — can gain even more benefits with AI. AI-powered tools can process massive amounts of data to find solutions to difficult issues, uncover new opportunities and possibilities, and evaluate current initiatives. Results span the realm of services, from public transit and public safety to safer power grids.

HOW VERIZON AND EQUINIX CAN HELP

Equinix Fabric enables organizations and coalition partners that are distributed across the globe to connect digital infrastructure and services on demand at software speed via secure, software-defined interconnection. It provides the ability to scale hybrid deployments, achieve network agility and directly connect to partners and providers easily and securely.

Together with NVIDIA, Equinix offers the AI LaunchPad solution on Platform Equinix to deliver instant AI infrastructure. Equinix Fabric provides high-speed and secure connectivity between distributed training and inference locations. Locating AI stack at Equinix provides high speed and secure connectivity to the data sources that are spread across private data centers, public clouds, data brokers and from the streaming devices at the edge.

Verizon Public Sector is a leading provider of network security and performance technology and services for state, local and federal agencies. Its Software-Defined Interconnect (SDI) solution enables agencies to connect their MPLS and Ethernet private networking services to hundreds of cloud, infrastructure and service providers.

By combining Verizon's high-speed network-as-a-service offering with the Equinix Fabric interconnection service, agencies can privately and securely connect their digital resources, enabling them to easily perform AI training, inference and analysis at any location. Learn more: www.verizon.com/business/solutions/public-sector.

Conclusion

More than one-third of government agencies across the board planned to increase their investment in AI and machine learning this year, and nearly 60 percent expect to have deployed them within the next three years, according to a recent [Gartner survey](#).

To get the most from AI, however, agencies need to know that they are working with the right data sets, that those data sets are available and secure, and that they can train and inference AI models at any place and at any time.

That means considering a distributed model to AI, where data scientists and IT staff can train and inference AI models at any location using data from data centers, edge devices and multiple clouds.



ABOUT VERIZON

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For more information please visit www.verizon.com/business/solutions/public-sector/.



ABOUT EQUINIX

Equinix is the world's digital infrastructure company, enabling digital leaders to harness a trusted platform to bring together and interconnect the foundational infrastructure that powers their success. Equinix enables today's businesses to access all the right places, partners and possibilities they need to accelerate advantage. With Equinix, they can scale with agility, speed the launch of digital services, deliver world-class experiences and multiply their value.

For more information please visit www.equinix.com.



ABOUT GOVLOOP

GovLoop's mission is to "connect government to improve government." We aim to inspire public-sector professionals by serving as the knowledge network for government. GovLoop connects more than 300,000 members, fostering cross-government collaboration, solving common problems and advancing government careers. GovLoop is headquartered in Washington, D.C., with a team of dedicated professionals who share a commitment to connect and improve government.

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