

# Federated Learning: Smarter AI for Civilian Services

The U.S. Departments of Homeland Security, Justice, and Commerce; Customs and Border Protection; the FBI; and many other civilian government agencies are using artificial intelligence (AI) to aid their missions. As data proliferates and AI gains traction, use cases continue to emerge, and Dell Technologies is right there, helping you make use of data at the edge by exploiting the advantages of federated learning.



Much of the U.S. Department of Energy’s planned \$20 million for research and development in AI and machine learning will go toward more secure and resilient power grid operation and management, and research toward transformative scientific solutions.<sup>1</sup>

## Edge is essential

By 2025, **75%** of data will be **created and processed at the edge.**<sup>2</sup>

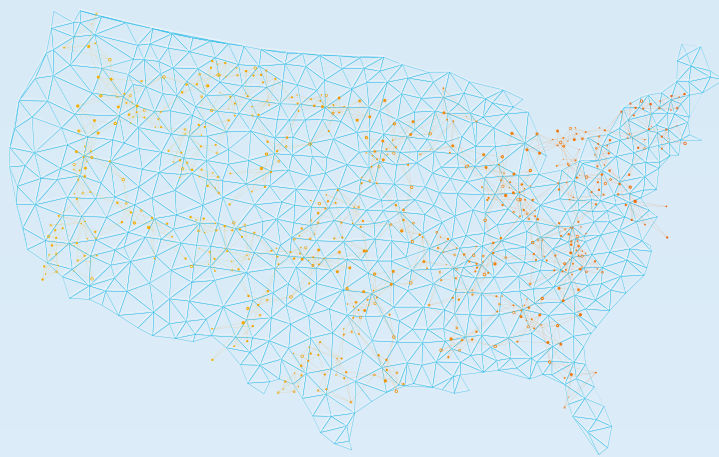


For the civilian government, that means enormous volumes of data from connected devices, cameras, radars, sensors, and business systems.



## The advantages of operational AI

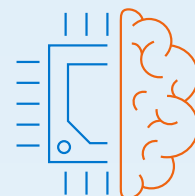
Government agencies across the board are collecting massive amounts of data at the edge, incorporating AI in edge analytics to provide accurate, real-time decision making.



U.S. Customs and Border Protection uses AI to monitor over 360 miles of waterways on the northern border. With high-resolution cameras and radar, the Northern Border Remote Video Surveillance System (NBRVSS) helps track smugglers and drug runners coming into the U.S. from Canada.

## Compounding value with federated learning

Federated learning is a machine learning approach that **computes at the device itself (edge computing)** using local data, making real-time prediction possible and accelerating AI.



### Benefits:



Democratize data



Utilize edge compute and inference models



Train models on all available data



Reduce hardware infrastructure required



Work where there is no internet connectivity



Make real-time prediction possible

**Civilian use cases:** Border protections and national security, COVID reporting, connected criminal justice system



Federated learning will begin to compound AI’s effectiveness. The generic machine learning models of today will learn at an astronomical pace from edge interactions and data. Federated learning will create much better user experience and use cases.<sup>3</sup>



Dell Technologies helps civilian government agencies implement federated learning to analyze, manage, store, process, and protect by reducing risk, deriving value, and creating new, meaningful insights for smarter AI at the edge.

To learn more, visit:

[DellTechnologies.com/Federal](https://DellTechnologies.com/Federal)



<sup>1</sup> US Department of Energy press release, Department of Energy announces \$20 million for artificial intelligence research, April 2019.

<sup>2</sup> Gartner, What Edge Computing Means for Infrastructure and Operations Leaders, October 2018.

<sup>3</sup> Dell Technologies presentation, AI: Innovation at the Mission Edge, fall 2020.