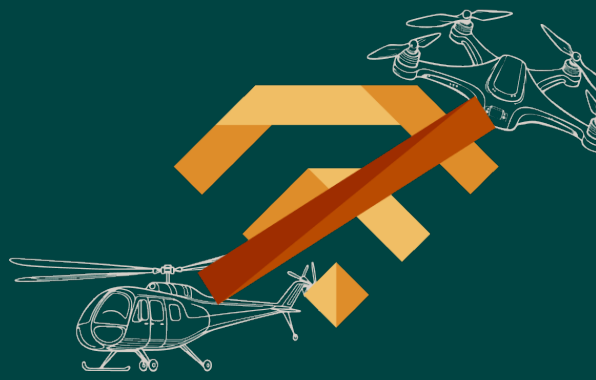
Spectro Cloud
GOVERNMENT

Mission resilience:

Maintaining operational continuity in disconnected environments



An infrastructure foundation for critical operations, wherever they run.

Business challenges

Public sector organizations can't assume that every critical workload will run in a centralized, always-connected cloud or data center. Citizen-facing services, field operations, research environments, tactical teams, remote facilities, and secure enclaves all depend on infrastructure that continues working even when connectivity, location, security requirements, or environmental constraints make centralized operations difficult or impractical.

Operational continuity means more than just being able to recover automatically after an outage — though it includes that too. It means the Kubernetes clusters running critical workloads can keep operating on their own when they lose their connection to central management, and can reconnect and bring their configuration current again once that connection returns. Continuity in this sense has to hold across cloud, data center, edge, disconnected, degraded, and regulated environments alike.

Without a common management approach, disconnected and hard-to-reach environments can become operational special cases with their own ways of being deployed, managed, secured, updated, monitored, and reconnected after a disruption — each dependent on whoever built it in the first place.

Key benefits

- **Continuity when connectivity drops:** Kubernetes clusters keep operating locally, without needing a constant connection to central management.
- **Consistent reconnection:** When a connection returns, cluster configuration reconciles back to its managed state through the same repeatable process, every time.
- **Reduced operational risk:** Fewer environments are treated as special cases, decreasing reliance on site-specific knowledge.
- **Current configuration, faster:** Configuration changes and updates catch up quickly once a site reconnects, instead of waiting on a manual pass.

Solution overview: More than a recovery plan – a foundation for continuity

Palette VerteX, Spectro Cloud's Kubernetes management platform, is built on a decentralized architecture: a central management plane defines and monitors desired state across every cluster, while enforcement happens locally, at the cluster itself. Each managed cluster keeps its own copy of the desired state and runs its own local agent — so it doesn't need a constant connection to central management to keep operating. When a cluster reconnects, it reconciles its configuration back to what's centrally defined.

This local/connected split gives public sector teams a consistent way to deploy, manage, secure, and update infrastructure across environments that don't necessarily look alike — cloud, data center, edge, disconnected, or regulated — without assuming every one of them shares an identical configuration.

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Deploy: Infrastructure is defined once as a standardized, verifiable blueprint, and deployed consistently across connected and disconnected environments alike.

Manage: Clusters can be operated locally when disconnected from central management, and through Palette VerteX's central console once reconnected — two distinct modes, both enforcing the same policies and configuration.

Secure: Security and configuration policies are enforced as infrastructure is deployed, supported by FIPS 140–3 validated cryptography and STIG-compliant OS options.

Update: Connected and air-gapped sites share the same configuration and governance approach, even though the delivery steps differ — for sites with no active network connection, approved update content is prepared, transferred, and applied through physical media.

Observe: Centralized visibility shows each site's last reported status. While a site is unreachable, that status doesn't update in real time; once the connection returns, it refreshes to reflect what's actually running.

Reconnect and reconcile: When a cluster loses its connection to central management, it keeps operating locally instead of stalling. Once a connection returns, supported infrastructure-configuration changes reconcile automatically. This does not replace a site- or workload-specific recovery plan, but it does re-establish cluster management.

Palette VerteX's management plane can run as multi-tenant SaaS, dedicated SaaS, or fully self-hosted, including behind an air gap. The clusters it manages can be deployed even more broadly across cloud, virtualized, or bare-metal data centers, and edge locations, including AWS GovCloud and Azure Government. These options let you and your team choose where to host the platform and where clusters run, giving you the flexibility you need to manage existing environments.

What this can look like in practice

Illustrative scenarios, not documented case studies.

Citizen-facing services

Consider an agency delivering benefits or case-management services from a central data center and a set of regional or field offices. If connectivity to a given office is interrupted, the Kubernetes cluster supporting that office keeps operating locally. Even with a central database or login dependency, the clusters themselves can still stay up.

Remote research and field operations

Consider an agency like DOE or NASA operating sensors, monitoring equipment, or research infrastructure at remote facilities where connectivity isn't a given. Because these clusters don't require a continuous connection to central management to keep operating, data collection and processing at those sites can continue during a connectivity gap, instead of halting until the connection is restored.

Secure and tactical enclaves

For DoW organizations and defense contractors, the same approach extends to secure enclaves and locations operating under degraded or disconnected connectivity. Infrastructure continues operating locally and reconciles automatically once a connection is available – supporting the controls an agency needs to maintain.

Operational continuity, by design

Operational continuity isn't about what happens after something breaks. It's about Kubernetes clusters that keep running on their own when they lose their connection to central management, and reconcile automatically once the connection returns. That's the foundation public sector teams need to keep critical operations moving, no matter how connected, disconnected, or regulated the environment.

Talk to our team about Palette VerteX for disconnected and edge environments

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