



VERTIV WHITE PAPER

**Federal and State Government
Data Centers: Balancing Modernization
and Servicing Imperatives**

Proactive Servicing Extends Infrastructure Lifespans and Helps Achieve Energy Efficiency Targets

For federal and state government agency technology teams, data center management challenges are multiplying, forcing near-term decisions about whether to modernize or service infrastructures. Federal agencies have long struggled to meet the mandates of the Data Center Optimization Initiative (DCOI) of 2016, which was built on the previous Federal Data Center Consolidation Initiative (FDCCI) of 2010.ⁱ In addition to closing legacy data centers, federal agencies must demonstrate progress against updated data center optimization targets for virtualization, advanced energy metering, server utilization and availability.ⁱⁱ

State agencies have similarly embarked on consolidation efforts to retire legacy technology and gain cost savings. For both federal and state agencies, fewer data centers mean lower complexity, increased operational efficiencies, greater energy savings and improved security. However, it also places more stress on a smaller network of facilities. Agencies will operate larger data centers that require more bandwidth, cooling and virtualizationⁱⁱⁱ while supporting mission-critical operations in an era of remote and distributed work models. Adding to the complexity of supporting the mission is a growing lack of staff, as 33 percent of U.S. data center professionals are expected to retire by 2025.^{iv} Federal and state agencies will compete with enterprises to hire top talent and fill the growing roster of open positions. If they cannot do so, they will increasingly lean on third parties to perform data center responsibilities, such as ongoing monitoring, management and servicing, as well as setting up new installations for success with effective power, cooling and rack and enclosure equipment. Partners like Vertiv can stand in the gap, providing expertise and ongoing services that enable agencies to reap greater ROI from their data center equipment investments.

Vertiv Is Considered an Essential Business



During the pandemic, 36% of all organizations have experienced a delay in conducting data center equipment maintenance.^v As an essential business, Vertiv is able to access and maintain customer data center equipment, even if the center limits access to other staff.

The New Normal

The purpose of this white paper is to help federal and state agency decision makers, including data center operations, IT, facilities and desktop technology managers, and communications room operators, consider whether to service new and existing equipment.

Proactive servicing can help agencies meet modernization imperatives, achieve efficiency objectives and extend the lifespan of their infrastructures. It includes:

- Installation of new products (including modular, containerized data centers)
- Configuration of devices on-site
- Support for in-flight projects
- Aftermarket maintenance and support
- Software support

Need more information?

- Read our [Federal Data Center Modernization](#) white paper
- Get insights and best practices on the [Vertiv™ blog channel](#)

The pandemic has created a perfect storm of pressures for both federal and state agencies. In addition to aging infrastructures and staff shortages, short budget windows and complex purchasing cycles, teams are facing the following:

- **Remote work pressures:** The nation is conducting the largest work-from-home experiment, placing enormous stress on infrastructure, with the need to scale remote access, bandwidth and services, while ensuring round-the-clock availability and reliability.
- **Remote work security risks:** Bad actors are increasingly targeting staff working from home with COVID-19-related phishing emails and other scams, as it is much easier to convince an individual to click on a link or attachment than breach agency operations that use a defense-in-depth approach to improve security.

- **COVID-19 security risks:** There have been rising state-based attacks against organizations involved in COVID-19 vaccine development and response. “Malicious actors ‘frequently target organizations to collect bulk personal information, intellectual property and intelligence that aligns with national priorities,’” according to US and UK security agencies.^{vi}
- **Remote access, monitoring and management:** Data center teams need to easily monitor and manage large device fleets, whether they are working remotely or from a central location.
- **Digital health and safety imperatives:** Business continuity has grown to include technology staff safety and wellness, which is affecting current and future staffing and data center equipment maintenance plans.

Modernize or Service? Why Not Both?

Against this backdrop, agencies are planning their next budget cycle and deciding whether to modernize and upgrade infrastructure or service their current assets. Fortunately, this is not a binary choice, and many agencies will benefit from doing both. It’s likely that the pandemic-related strain on agency infrastructures has once again pushed modernization imperatives to the forefront. In this paper, we explore the different ways you can service new and existing assets and how this helps you achieve your mission. While seeking to upgrade or optimize equipment in this environment is necessarily more complex than in pre-pandemic days, partners like Vertiv can help you execute on your business imperatives.

Agencies Now Have Simplified Acquisition Processes Due to the Pandemic

For federal and state agency teams seeking to modernize and service infrastructures, there is a glimmer of hope, in the sense that complex purchasing processes have been simplified due to the ongoing pandemic. After the president declared a national emergency due to COVID-19 under the Stafford Act, FAR § 18.202, “Defense or recovery from certain effects,” took effect, providing new purchasing flexibilities to agencies. These flexibilities include:

1. The micro-purchase threshold is raised from \$10,000 to \$20,000 for domestic purchases and to \$30,000 for purchases outside the U.S.
2. The simplified acquisition threshold is raised from \$250,000 to \$750,000 for domestic purchases and \$1.5 million for purchases outside the U.S.

3. Agencies may use simplified acquisition procedures up to \$13 million for purchases of commercial item buys.^{vii}

In addition, the CARES Act has established a \$150-billion-dollar Coronavirus Relief Fund that enables state, local and tribal governments to access funds that according to the U.S. Department of the Treasury:

- “are necessary expenditures incurred due to the public health emergency with respect to the Coronavirus Disease 2019 (COVID-19);
- were not accounted for in the budget most recently approved as of March 27, 2020 (the date of enactment of the CARES Act) for the State or government; and
- were incurred during the period that begins on March 1, 2020, and ends on December 30, 2020.”^{viii}

These purchasing flexibilities and CARES Act funds will make it easier for both federal and state agencies to quickly allocate monies needed to modernize and service data center equipment, provided they meet new purchasing requirements.

How the Pandemic Is Changing Data Center Needs and Policies

In a recent survey by the Uptime Institute, organizations reported that the pandemic will change the following data center policies and practices over the next 24 to 36 months, including:^{ix}

- An increase in remote working – 77%.
- Greater use of remote monitoring systems – 61%.
- Reduced number of personnel/visitors entering the data center – 52%.
- Greater use of remote control/automation – 49%.
- Procurement changes favoring suppliers in the same region/country – 21%.
- An increase in on-site parts inventory – 19%.
- A move to condition-based maintenance where practical – 17%.

These changes and others can indicate a need for remote monitoring and management solutions and ongoing services that partners like Vertiv can provide.

Case Study

Government Agency: Ensuring High Availability

A federal agency installed multiple Liebert® NXL UPS systems, Geist™ Combination Outlet Rack Power Distribution Units and Vertiv™ Geist™ Passive SwitchAir™ systems in four data centers, enabling them to maintain high availability on all platforms. Under a five-year service contract, Vertiv will also upgrade existing Liebert® UPS systems, undertaking preventive maintenance to maintain exceptional performance.

This agency is about to build a fifth data center onsite. Vertiv is working proactively with the end-user and engineering firm on additional designs and implementation procedures. With our help, the agency is delivering performance, uptime and service that is second to none.

Why Agencies Should Service New Equipment

Given that pressures on data center infrastructure are likely to stay high and sustained throughout the pandemic, now may be an excellent time to press forward on modernization and servicing initiatives. Your team is mindful of the OMB's directive to automate infrastructure management with tools such as data center infrastructure management (DCIM) as well as press forward to achieve performance metrics such as advanced energy metering and facility availability.^x In addition, you know that maintaining uptime and full functioning of your data network is job one. With access to purchasing flexibilities and CARES Act funding, you likely have increased control over the purchasing cycle. You can make significant strides against achieving your modernization, availability and reliability imperatives, future-proofing and battle-testing your infrastructure to perform in any and every environment.

Here's how Vertiv can help achieve those goals:

- **Installation of new products:** We can provide turnkey services with commissioning, startup services, professional project management, installation and rental solutions. You gain peace-of-mind with an end-to-end solution that provides faster access to new capabilities, as well as lower operating costs, improved energy efficiency and safety, and reduced downtime.



- **Support in-flight projects:** If you've already begun a project but have identified new needs, Vertiv can help. Let us help you provide the power and cooling you need to support new technology, ensuring it functions effectively on day one.



- **Configuration of devices on-site:** We can configure devices to your specifications on-site, ensuring new Vertiv™ equipment operates as expected and achieves your desired performance and energy efficiency targets.

Benefits of Using Vertiv for Installations

When you use Vertiv to install and optimize new equipment you gain immediate benefits, including:

- Designing your facility for success, with a future-proof framework for managing operations, evolving to meet new mission demands and aligning to projected budgets.
- Building for modularity and scalability, reducing operational complexity and costs.
- Optimizing the placement of each and every piece of equipment.
- Creating a holistic view of your data center operations that enable continuous optimization.
- Managing out legacy issues, including excessive fiber installations, equipment blind spots, over- and under-cooling of equipment, end-of-life solutions and more.
- Reaping energy savings from Day 1, reducing your total cost of ownership for new equipment.
- Ensuring the longevity of your equipment, avoiding costly break/fix services or product replacements.

Case Study

Federal Agency: Optimizing Cooling

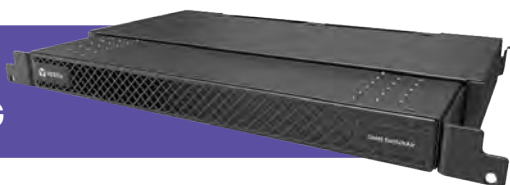
After installing a new air conditioning system, a federal agency wanted to use Liebert® iCOM™-S data visualization software across both Vertiv and third-party devices. We configured iCOM-S to manage all devices. The agency benefited from thermal monitoring and control that reduced energy costs up to 40%, using advanced control algorithms.

Vertiv Products That Can Help You Deliver Your Mission

Note: Trade Agreements Act (TAA) and Buy American Act (BAA) certifications are noted below by product names.

Rack Cooling: Vertiv™ Geist™ Passive SwitchAir™ (TAA-BAA-compliant) and Active SwitchAir™ help prevent network equipment from failing by channeling cool air from the front of the rack to the air intakes regardless of where the equipment is mounted.

RACK COOLING



Remote Monitoring: Vertiv™ Environet™ (TAA-BAA-compliant) is a comprehensive monitoring solution with an interactive interface that provides visibility into your data center environment. Use real-time, holistic information that empowers you to proactively manage moves, adds and changes with speed and confidence.

REMOTE MONITORING



Single Phase UPS: Gain an intelligent and efficient uninterruptible power source (UPS) to protect your mission-critical applications. UPS solutions include:

- **Liebert® GXT4** (TAA-compliant) is a true on-line UPS that delivers continuous, high-quality AC power with no break when transferring to battery, making it a natural fit for protecting mission-critical equipment.
- **Vertiv™ Liebert® PS15 UPS** (TAA-compliant) is a compact, automatic voltage regulation (AVR) line-interactive UPS system designed especially for IT applications such as network closets and small data centers. It supports advanced pure sine wave output on battery to safeguard critical IT equipment and electronics.
- **Vertiv™ Liebert® PS15 Lithium-Ion Line Interactive UPS** offers the leap-ahead advantage of lithium ion technology with up to 50% lower total cost of ownership compared to VRLA battery models, in a smaller, lighter package. This UPS solution also provides faster recharge times, delivers up to 10x more charge/discharge cycles and can operate at higher temperatures with no degradation in performance. As such, it is ideally suited to protect critical infrastructure in edge or distributed IT applications.



SINGLE PHASE UPS

Rack and Containment: Leverage our flexible rack and containment solutions that make it easier for you to scale operations. The Vertiv™ VR Rack (TAA-compliant) handles up to 3,000 pounds of equipment and is available in multiple SKUs to support a wide variety of equipment with scalability.



RACK AND CONTAINMENT

IT Remote Access and Management: Minimize security with a robust portfolio empowering you to manage critical IT equipment whether or not it is in- or out-of-band.

- **Vertiv™ Avocent® ACS 8000 Serial Consoles** (TAA-compliant) deliver secure in-band and out-of-band visibility and control to downstream equipment in enterprise data centers, as well as cloud and colocation facilities. Cellular connectivity provides both primary WAN interface and secondary failover support.
- **Avocent® MergePoint Unity™ Digital KVM Switch** (TAA-compliant) includes both KVM-over-IP and serial console management technology, enabling you to centralize the management of the switches with DSView™ 4 Management software.
- **Avocent® HMX Digital High Performance KVM** systems (TAA-compliant) are designed for organizations that need to provide workers with the ability to seamlessly access and share one or more computing resources which are physically separated from their work environment. This solution provides users an “at-the-desktop” experience from their work stations to any appliances, PCs or computing resources attached to the HMX IP network.
- **Avocent® DSView™ Management Software** (TAA-/BAA-compliant) is the single-rack view needed for all your servers, embedded technologies, network equipment and power devices. It enables unified, secure “hands-on” control of remote infrastructure.

IT RACK ACCESS AND MANAGEMENT



Rack Power Distribution: Gain a comprehensive view of power usage to provide reliable power distribution to critical IT equipment. Geist™ Combination Outlet Rack Power Distribution Units (PDUs) (TAA-compliant) eliminate the complexity in deploying and managing IT rack configurations by adapting to any mix of hardware power configuration needs. This means you no longer need to define IEC receptacles or location. Nor do you have to replace rPDUs as rack and power configurations change over time, substantially improving the lifecycle and return on investment for rPDUs.

RACK POWER DISTRIBUTION



Case Study

Civilian Agency: Supporting In-Flight Project

As an agency began modernizing its infrastructure, it realized that its current power and cooling systems would not support new equipment. Vertiv was able to rapidly provide advisory services, pricing and installation of new power and cooling to enable the agency to capitalize on its new capabilities

Why Agencies Should Service Existing Equipment

- **Aftermarket maintenance and support:** Gain the peace-of-mind, reliability and predictable costs of receiving routine maintenance and support after you install your Vertiv™ solutions. Avoid the pain and strain of navigating complex budgeting cycles for servicing by buying as many years of maintenance as you need to maximize solution lifespan. Benefit by knowing that Vertiv stands behind its solutions and will proactively replace any solution that requires it as we maintain your equipment on an ongoing basis.
- **Software support:** Technology naturally degrades over time, while changes in your operations may create issues that you're not aware of. With remote monitoring and management of your solutions, we can diagnose issues rapidly, arrive onsite with the proper parts and tools and address issues before they impact your performance. Let us help you proactively optimize your power and cooling to continue to drive results.

Benefits of Using Vertiv for Ongoing Maintenance

When you use Vertiv to provide ongoing service, you gain benefits including:

- Maintaining equipment to drive its throughput and effectiveness, reducing the total cost of ownership.
- Proactively identifying and addressing any issues that arise that could harm your operations.
- Helping you meet your service level agreements for availability and reliability.
- Achieving your energy efficiency targets to ensure compliance with mandates.
- Avoiding costly device replacements due to ineffective power and cooling.
- Helping prevent costly data center outages due to malfunctioning equipment that should have been proactively replaced.
- Tapping a local expert resource to provide timely service on a 24 x 7 x 365 basis.
- Properly disposing of end-of-life solutions to meet your requirements.

Adding Value to Your Mission-Critical Operations

Vertiv can help your federal or state agency team monitor, manage and service your data centers as you navigate through the pandemic and beyond. We stand ready to help you achieve your modernization or servicing imperatives. Here's how we add value to your operations:

- **Knowledge:** We provide in-depth expertise on our critical power, thermal management and rack and enclosure solutions. We can design solutions to meet your needs, from complex facility installations to installation and maintenance of specific solutions.
- **Device lifespan:** We can configure, monitor and manage devices to increase their lifespan, stretching your budget dollars further.
- **Energy efficiency:** We can help you meet OMB mandates by correctly configuring devices, providing you with monitoring tools and conducting ongoing monitoring and management on your behalf.

- **Broad range of products:** Whatever your power, cooling, or rack and enclosure needs are, you will find the right solutions in our extensive product portfolio.
- **Single point of accountability:** Call one number to get rapid, expert service to maintain uptime, address issues and meet your service level agreements.
- **Nationwide support:** Whatever your location, we have local experts who can come on-site to support you.
- **Service in any condition:** As an essential business, we can gain access to data centers when others can't, helping proactively service equipment and avoiding the issues deferred maintenance creates.
- **Focus on your business imperatives:** Outsource monitoring and management to focus on critical imperatives, such as modernizing your infrastructure and enabling mission-critical operations.

Let us help you modernize or service your data center infrastructure. Start today.

To learn more or contact us, visit us at
<http://www.vertiv.com/federal>

Endnotes

ⁱFederal Data Center Modernization, White Paper, Vertiv, September 10, 2019, page 3, <https://www.vertiv.com/en-us/about/news-and-insights/articles/white-papers/federal-data-center-modernization/>

ⁱⁱMemorandum for Chief Information Officers of Executive Departments and Agencies, White House, June 25, 2019, <https://www.whitehouse.gov/wp-content/uploads/2019/06/M-19-19-Data-Centers.pdf>

ⁱⁱⁱPhil Goldstein, "Data Center Consolidation Strategy and Best Practices for State Governments," Article, StateTech Magazine, November 30, 2018, <https://statetechmagazine.com/article/2018/11/data-center-consolidation-strategy-and-best-practices-state-governments-perfcon>

^{iv}Federal Data Center Modernization, Vertiv, *ibid*.

^vZachary Cohen, "State-Backed Hackers Behind Wave of Cyberattacks Targeting Coronavirus Response," US and UK warn, CNN, May 5, 2020, <https://www.cnn.com/2020/05/05/politics/us-uk-cyberattack-warning-coronavirus/index.html>

^{vi}Post-Pandemic Data Centers, Report, Uptime Institute, 2020, page 6, https://uptimeinstitute.com/uptime_assets/b1a8d0aaf2242ce37a10764f87c06c728ac9e7521b7ae934ff71d5b3e66596ff-post-pandemic-data-centers.pdf

^{vii}Federal Purchasing Threshold Declaration, Fact Sheet, Vertiv, August 2020, https://www.vertiv.com/4a3a59/globalassets/documents/data-sheets/vertiv-federalpurchasing-ds-en-na-vr-11562-web_311549_0.pdf

^{viii}"The CARES Act Provides Assistance for State, Local, and Tribal Governments, U.S. Department of the Treasury, undated, <https://home.treasury.gov/policy-issues/cares/state-and-local-governments>

^{ix}Post-Pandemic Data Centers, *ibid*, page 7.

^xMemorandum for Chief Information Officers of Executive Departments and Agencies, White House, *ibid*.



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