2019 HEALTHCARE IT TRENDS.

An overview of new technologies, hybrid IT, and digital transformation

HIPAA COMPLIANT

PCI DSS COMPLIANT

SSAE 18 SOC 1 TYPE 2 SOC 2 TYPE 2 AUDITED PLATFORM

FISMA

Technology, meet Humanity.

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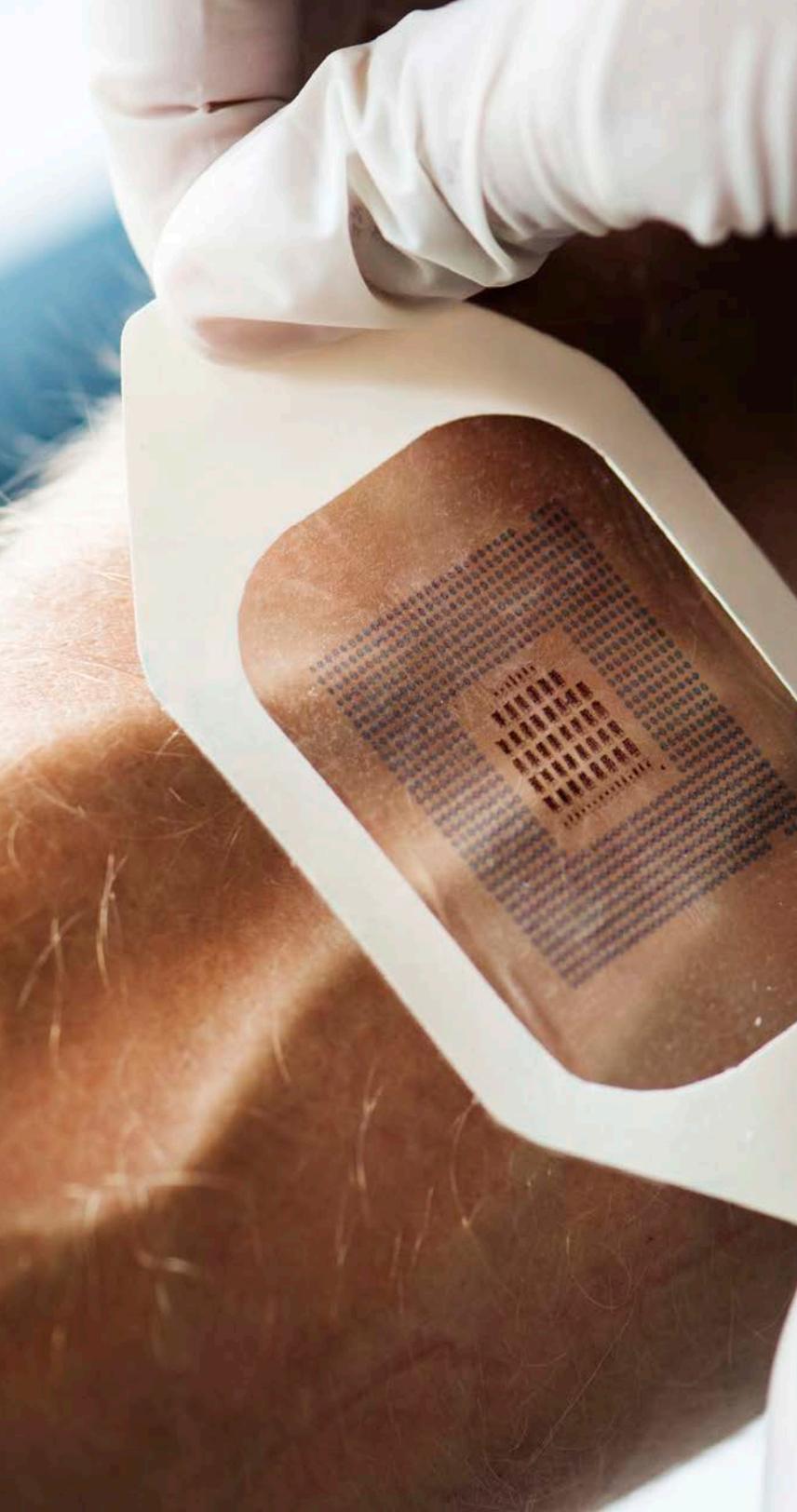
2019 Trends in Healthcare IT

The healthcare industry is projected to add an estimated 4 million jobs by 2026. With the increase in jobs, demand for new technologies and digital health tools that enable and engage patients in their own healthcare journey are also on the rise.

Digital health tools that deliver a seamless healthcare experience between patient and practitioner are driving transformation within the industry -- virtual caregivers, coaching apps, personal electronic health records, and new technologies are improving health, wellness, and longevity.

Telehealth
A cross-sectional survey of patients and clinicians participating in telehealth revealed that the number of telehealth patients rose to 7 million in 2018. Reasons cites include convenience, quality, and overall satisfaction.

- 79% of study participants said that it was easier to schedule a convenient appointment time for a telehealth follow-up visit than for a clinic visit
- 68% rated their visit a nine or a ten on a ten-point satisfaction scale
- 66% said they had strong personal connections to their telehealth provider
- 62% said the quality of care via telehealth was the same as an in-person visit
- 21% said the quality of care via telehealth was better than an in-person visit

AI, Machine Learning and Analytics
According to estimates of a Frost & Sullivan Survey in 2018, AI for the healthcare (IT application) market is expected to cross 1.7 billion by the end of 2019.

Solutions that incorporate AI, Machine Learning, and Analytics are being used for image processing to detect abnormalities, risk analytics, preventative care, drug discovery, research and process improvements. Business intelligence dashboards that display hospital operations, infectious diseases, readmission

rates and population outcomes are trending upward.
Many healthcare experts anticipate that operationalizing AI across healthcare work management would result in 10-15% increase in productivity in the next 2 years.

Blockchain
Global blockchain in the healthcare market is assessed to grow with 47.23% CAGR during the forecast years of 2019- 2027.

Use cases for blockchain in healthcare are beginning to take hold for supply chain, medical data, and administration needs. This is particularly true in United States regions where infrastructure is already in place to support the technology.

IoT, Wearables and VR
According to a report by Aruba Networks, the projected market for wearable technology in 2027 is $150 billion with 87% of healthcare organizations adopting IoT by the end of 2019.

The most common IoT, wearables and VR technology applications in healthcare today are:
- 64% patient monitors
- 56% energy meters
- 33% X-rays and imaging
- VR 3-D rendering and reality-based training
- VR immersive treatment for anxiety, stress relief, and physical therapy

Interoperability
As providers and vendors alike begin to build application programming interfaces that will improve data sharing among providers, align electronic health record data, apps and tools.

Hybrid Cloud Deployment
Distributing workloads across a right-sized mix of public cloud, private cloud, colocation, and on-prem infrastructure ensures performance, compliance and security.

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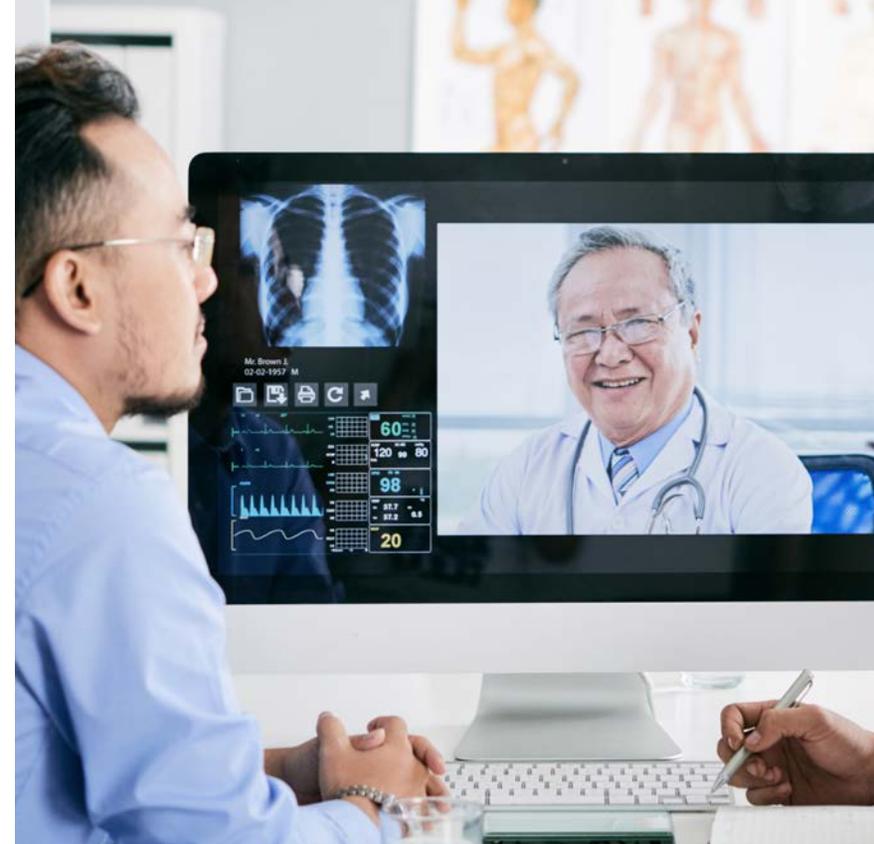
EHR Software Comparison
- Integrated Billing
- Pricing Tier
- Patient Portal
- Mobile Friendly
- Cloud vs. Server Based
- Online Support
- Customizable for your specialty
- Customizable for your practice
- Secure Telehealth Capabilities
- Lab Integration
- Automated E/M Coding Assistance
- Productivity Enhancement Features

Security and Compliance for Your Healthcare Technologies

Security matters when it comes to protecting valuable health data. In 2018, the healthcare industry saw an average of 32,000 intrusion attacks per day per organization.

Valuable healthcare data should be kept secure from geographic location to facility to network to people. Failure to implement resilience could be a matter of life and death.

IDG recently published *'Top Cybersecurity Facts, Figures, and Statistics'* indicating that cyber crime and data breaches are on the rise.

The article included a plethora of examples, including:

* **Average cost of a single cyber attack: $5 million**
* **25% of the cost of a single attack is attributable to system downtime: $1.25 million**
* **30% of the cost of a single attack is attributable to IT and end user productivity loss: $1.5 million**
* **Average time it takes to identify a data breach: 191 days**
* **Ransomware attacks increased by 36% in 2017**

With fast-paced environments and large attack surfaces, cybercriminals are targeting healthcare organizations for their valuable private information and available health records.

New technologies are implemented and paper records transferred to Electronic Health Records (EHR), provide a range of benefits including innovative solutions, cost savings, mobility, and accessibility.

But the benefits also come with some risks that healthcare providers and end users alike need to safeguard against.

Hacking
EHRs provide more entry points for hackers to gain access via doctors, patients, medical staff, and admin access. Internet of Things (IoT) devices for monitoring patients and systems in hospitals and medical centers could present another possible entry point.

Lack of Proper Data Protection
Too often, hospitals and medical facilities haven't implemented security protocols to segment the EHRs and medical data from IoT and guest devices.

Ransomware
Digital healthcare data has become a part of daily patient care. Doctors and nurses rely on the information to provide treatment. Cybercriminals who are able to gain access to that valuable data may block access unless a ransom is paid.

Our healthcare customers choose Opus Interactive because we've spent more than 20 years building on our policies and processes to ensure security and compliance that protects patient and practitioner data. We build custom solutions and deliver our services from FISMA High rated facilities. Our private cloud offering is both FEDRAMP Moderate and third-party verified to outperform AWS and Azure.

Security matters. In 2018, the healthcare industry saw an average of 32,000 intrusion attacks per day, per organization.

When it comes to health care, kids are different. Children's health, care delivery and policy environment continuously evolve – so do children's hospitals and systems. Representing more than 225 hospitals, The Children's Hospital Association (CHA) advances child health through innovation in the quality, cost and delivery of care with our children's hospitals. Opus Interactive provides the reliable infrastructure hosting and backup that enables CHA to focus on advancing policy, improving performance and enhancing knowledge of children's health and care.

Frank Kish
Infrastructure Services Manager
Children's Hospital Association

Children's Hospital Association
The Children's Hospital Association (CHA) advances child health through innovation in the quality, cost and delivery of care with our children's hospitals. Representing more than 220 children's hospitals, the organization serves as rhe voice of children's hospitals nationally. Children's hospitals are essential providers, setting the standard for the highest quality pediatric care while training the next generation of pediatricians. With its members, the CHA champions policies that enable children's hospitals to better serve children; leverages its position as the pediatric leader in data analytics to facilitate national collaborative and research efforts to improve performance; and spreads best practices to benefit the nation's children.

Digital Transformation in Healthcare

The healthcare industry is adopting solutions that integrate new and legacy technologies to deliver a seamless end user experience - from digitized records to virtual care. Where legacy systems worked within traditional on-prem, cloud, or colocation environments, new systems distribute workloads across hybrid networks. The right hybrid IT mix disburses streaming, collection, compute, and storage to environments where they make the most sense for cost and performance.
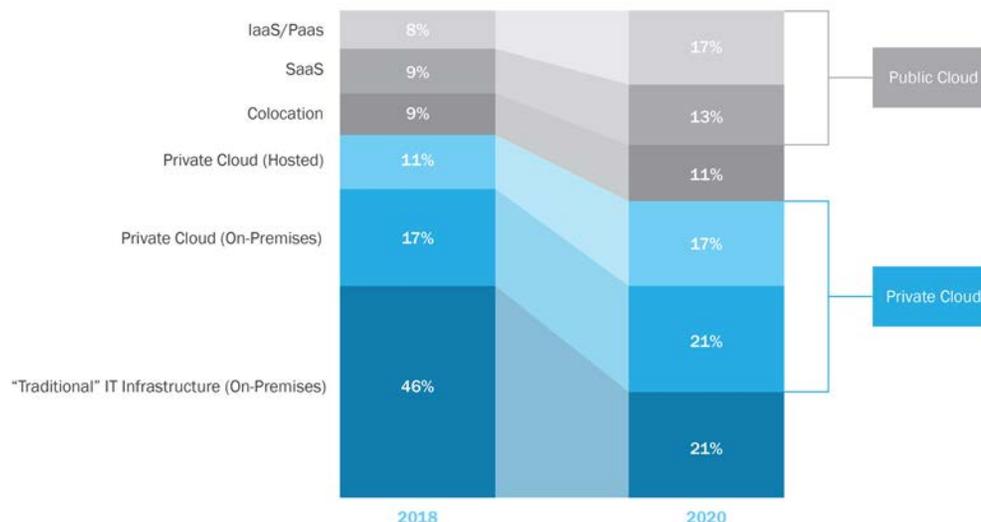
451 Research - HCTS 2018

Hybrid IT is a complex landscape to navigate. Understanding optimized workload distribution and price-performance metrics are key. Not every cloud delivers the same for performance for the same cost. Not every facility is FISMA High rated and power usage effeceiveness (PUE) and availability of connectivity differs by facility. Valuable healthcare data requires secure environments verified by stringent compliance guidelines.

Hybrid solutions means more to manage to protect assets, prevent over-provisioning, control costs, and enforce policy. Healthcare IT professionals

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need real-time visibility and control of the entire environment, wherever workloads are distributed. The ability to manage the entire environment with increased policy enforcement and billing control through a single platform provides peace of mind.

Digital transformation is happening across the healthcare industry:

- **Define:** Identify legacy infrastructure and current/future workload needs and available hybrid options
- **Deploy:** Design, plan and migrate
- **Deliver:** Implement storage, compute, and monitoring/management
- **Secure:** End-to-end protection from compliance to backup
- **Maintain and Monitor:** Execute monitoring strategy across network to control costs and ensure policy enforcement
- **Improve:** Ongoing systems reviews and improvement recommendations

Price Performance
CPU & Memory
ALL VMS: CPU PERFORMANCE PER DOLLAR

Performance Value Per USD (Higher Is Better)

Price Performance
Storage: Read
ALL VMS: STORAGE READ PERFORMANCE PER DOLLAR

Storage Read Performance Value Per USD (Higher Is Better)

Price Performance
Storage: Write
ALL VMS: STORAGE WRITE PERFORMANCE PER DOLLAR

Storage Write Performance Value Per USD (Higher Is Better)

Making sure our patients' data was protected and available is critical for our organization. Opus Interactive continues to meet our needs for security of the facility, network, price, and flexibility.

Eric Cole
Associate Director of Information Systems
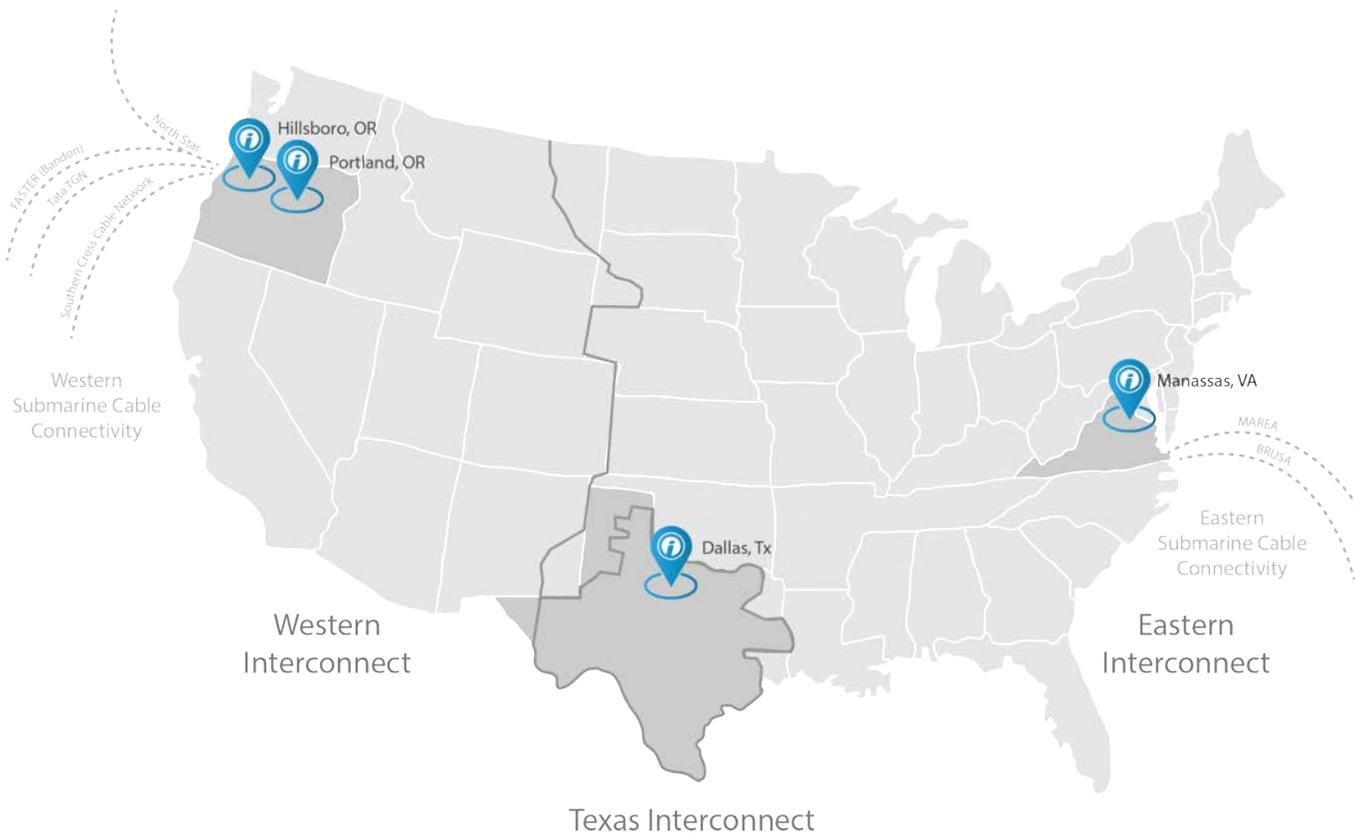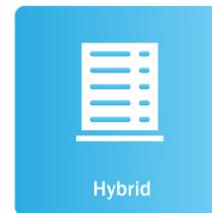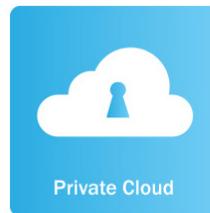*SCCA Proton Therapy Center*
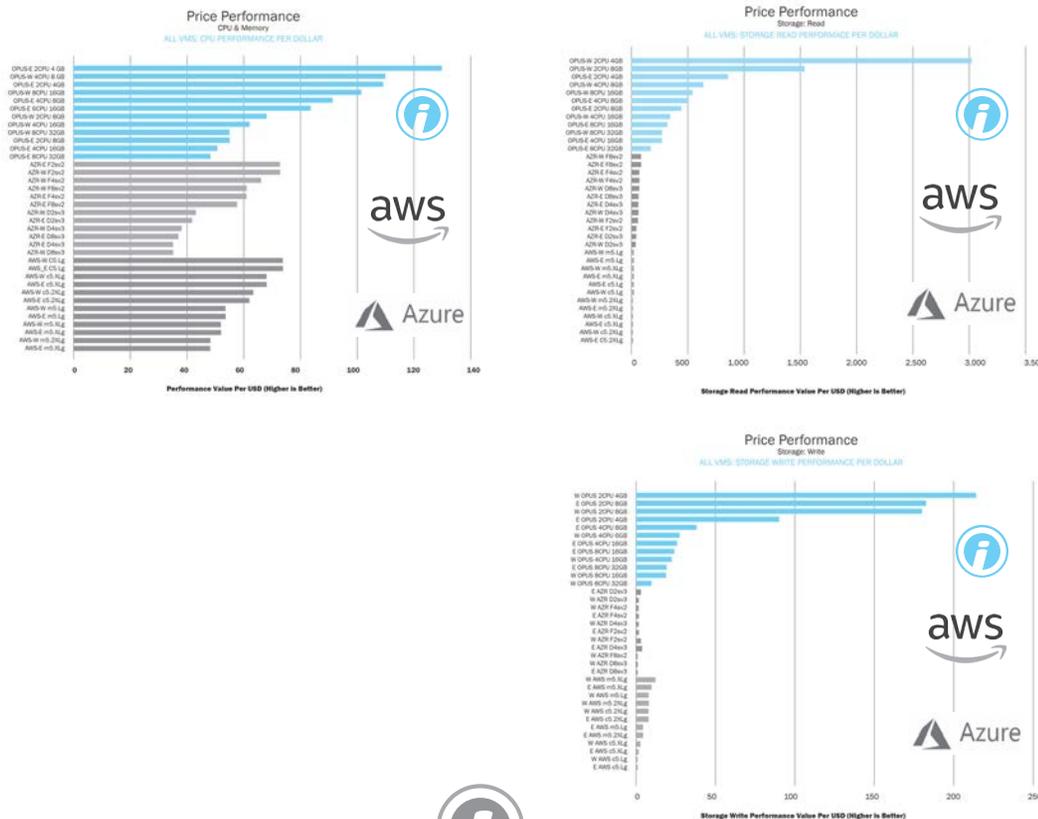
SSCA Seattle Proton
SCCA Seattle Proton therapy is an advanced radiation treatment that precisely targets tumors, minimizing radiation to healthy tissue and improving the lives of patients with cancer. Proton therapy deposits the greatest amount of radiation right into the tumor and then stops. This allows to receive high doses with less risk of damage to nearby healthy tissue. This more targeted form of radiation is especially useful for pediatric cancers, where the impact of excess, harmful radiation causes long-term damage. Research shows proton therapy can minimize short- and long-term side effects, reduce the occurrence of secondary tumors and improve patients' quality of life.

Hillsboro, OR
Portland, OR
Manassas, VA
Dallas, Tx

North Star
FASTER (Bandon)
Tata TGN
Southern Cross Cable Network

Western
Submarine Cable
Connectivity

MAREA
BRUSA

Eastern
Submarine Cable
Connectivity

Western
Interconnect

Eastern
Interconnect

Texas Interconnect

**Cloud Hosting ● IaaS ● Colocation ● DRaaS & Backup ● VDI
● Object Storage ● Multi-Cloud Monitoring**

Public Cloud

Multi-Cloud

Private Cloud

Hybrid

ABOUT OPUS INTERACTIVE

Opus Interactive is a woman-owned cloud, colocation, and IT services company based in Portland, Oregon. Our mission-critical IT services deliver end-to-end support for Data Center Optimization Initiative (DCOI), shared services, cloud first strategies, and digital transformation. We've spent over 20 years building strong partnerships and honing a service mix that we deliver from Tier III datacenters located in Oregon, Texas, and Northern Virginia (FISMA high rated). A member of VMware and HPE partnership programs since 2005 and PCI-DSS, HIPAA, and SSAE 18 SOC 2 Type II audited, the company's past performance includes proven results since 1996.

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