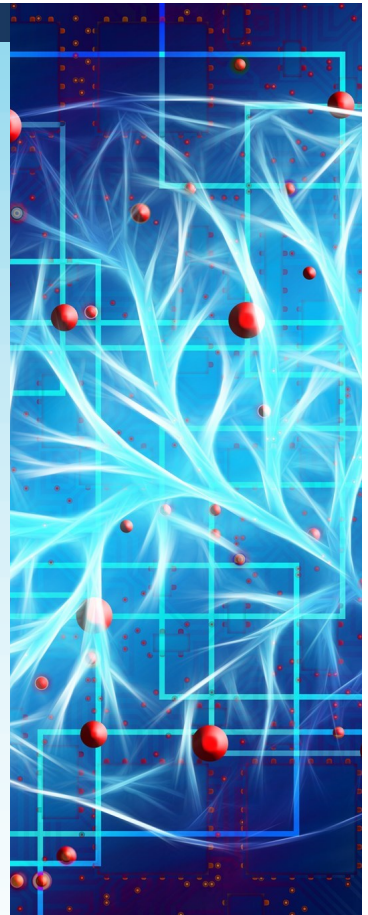




# Cloud Architecture



## Continuously Elevating Cloud Services

In the dynamic landscape of expanding cloud adoption, BEAT stands out as a trusted partner with the expertise and experience to ensure success. Choose BEAT for innovative, cost-effective, and cutting-edge cloud solutions that propel your organization forward.

## Cybersecurity & Big Data Analytics in the Cloud

BEAT exceeded Air Force Cyber's expectations with an early delivery of a comprehensive GovCloud-based big data solution. The package included cloud architecture, operations, analytics, training, and full accreditation, resulting in a groundbreaking weapon system providing unprecedented near real-time analytics and alerting across global data sources.

## Agile DevSecOps Mastery in the Cloud

BEAT is highly regarded as a key partner for the Defense Health Agency and Military Health Systems, renowned for its superior IT support and service diversity. Addressing the Solution Delivery Division's demand for a cloud environment tailored for development and testing, BEAT crafted a solution that included VPN, multifactor authentication, and specific access control lists to enable exact read-only testing.

## Custom Oracle SaaS Application Development in the Cloud

The Defense Information Systems Agency and Joint Service Provider turned to BEAT for help in implementing a new Warehouse Management System. By harnessing our cloud architecture, development, and cybersecurity expertise, we provided a customized Oracle Fusion GovCloud WMS application, meeting DoD Cloud Computing Impact Level 4 standards. Importantly, our solution outperformed expectations and offered significant cost savings compared to the on-premises option initially considered.



## Adherence to Essential Cloud Characteristics

NIST SP 800-145 defines Software as a Service (SaaS) as "The capability provided to the consumer is to use the provider's applications running on a cloud infrastructure. The applications are accessible from various client devices through either a thin client interface, such as a web browser (e.g., web-based email), or a program interface. The consumer does not manage or control the underlying cloud infrastructure including network, servers, operating systems, storage, or even individual application capabilities."

## Our Approach

BEAT's SaaS infrastructure consists of purpose-built, collections of hardware and software designed to deliver *The Five Essential Characteristics of Cloud Computing*, described on page 2. Our cloud infrastructure provides 2 distinct layers:

1. A Physical Layer - These are the hardware resources that are necessary to support the services being hosted (i.e. servers, compute resources, storage, and networking).
2. An Abstraction Layer - This is the software or collection utilities, which are hosted on and supported by the physical layer components.

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## Cloud Service Simplified

- 1. Infrastructure as a Service (IaaS)**  
IaaS empowers agencies to provision essential computing resources on third-party infrastructure, eliminating the need for ownership, maintenance, or management of processing, storage, hardware, and networks.
- 2. Platform as a Service (PaaS)**  
PaaS enables agencies to deploy software applications on third-party infrastructure, managing hosting environment configurations without the burden of ownership, maintenance, or management.
- 3. Software as a Service (SaaS)**  
Software as a Service (SaaS): SaaS allows agencies to leverage a provider's software applications via third-party infrastructure, accessible through a web browser interface.

BEAT specializes in SaaS solutions, creating customized options for diverse needs. This focus allows customers to prioritize mission objectives over technology management. Our services include fully managed SaaS for advanced security operations, featuring a custom big data ecosystem with rapid analytics deployment, efficient search, timely alerts, and insightful visualizations. We also offer and maintain both commercial and government software solutions across different cloud models. Additionally, we modernize legacy applications using microservices and container technologies like Docker and Kubernetes. Our advanced solutions incorporate AI/ML, NLP, business analytics, geolocation integrations, threat intelligence, and more, giving customers access to the latest technological innovations.

## Cloud Computing Services Deployment Model

BEAT aligns its SaaS offerings with mission requirements and diverse deployment models, as per NIST SP 800-145. We offer private, community, public/GovCloud, or hybrid cloud environments to suit various missions, from R&D to production. Our solutions meet all DoD Cloud Computing Impact Levels, complying with SRG, FISMA, and NIST SP 800-37 guidelines.

**Private Cloud:** Tailored for a single customer, available with BEAT or third-party management, hosted either on-site or off-site.

**Community Cloud:** For customers with shared goals or security needs, managed by the community, BEAT, or a third party, and hosted on-site or off-site.

**Public/GovCloud:** Open to all, with flexible management and hosting off-site by BEAT or other providers.

**Hybrid Cloud:** Merges various models for enhanced resource sharing and capabilities, combining private cloud with public or community clouds.

## BEAT's Cloud Computing Fundamentals

Referring to NIST SP 800-145, cloud computing's five essential characteristics are as follows:

- 1. On-demand Self-Service:** BEAT provides a self-service platform, allowing customers to easily manage and schedule their compute and storage resources. This enhances operational efficiency, reduces downtime, and simplifies contracts.
- 2. Broad Network Access:** BEAT's SaaS solutions offer wide network accessibility, compatible with various devices and platforms. This ensures easy access from a range of devices including smartphones, tablets, desktops, and even low-power devices.
- 3. Resource Pooling:** Utilizing top cloud providers, BEAT offers multi-tenant solutions with dynamic resource allocation. This approach ensures reliable redundancy across distributed data centers.
- 4. Rapid Elasticity:** BEAT's services automatically scale resources to match real-time demands, ensuring consistent availability and cost optimization.
- 5. Measured Service:** BEAT's SaaS includes comprehensive monitoring, providing metrics for resource management, aiding in efficient orchestration, and facilitating decision-making through detailed dashboards and reports.

