



Advancing our customers' missions
through innovative, agile technologies

baesystems.com

BAE SYSTEMS

As a leading systems integration, sustainment and engineering company, our priority as a service organization is to ensure our customers have access to breakthrough technologies that solve their toughest problems. This includes capabilities that support the Department of Defense's (DoD's) digital engineering [vision](#) of "an integrated digital approach that uses authoritative sources of systems' data and models as a continuum across disciplines to support lifecycle activities from concept through disposal." We're at the forefront of the digital transformation age, providing digital engineering solutions to service branches and agencies. Digital transformation and digital engineering are absolute necessities because of the efficiency and decision-informing value they bring to the table.

Advancing Digital Engineering Capabilities

As we support our customers' priorities to preserve and advance our nation's strategic defense advantage, we continue to expand our systems integration capabilities through state-of-the-art digital engineering technology at BAE Systems. Guided by the DoD's digital engineering strategy, we are integrating new modeling tools and developing model-driven methods for many services, systems, and products.

We continue to grow technical talent and expertise and to apply digital engineering – and more specifically, model-based systems engineering (MBSE) to solve hard problems and increase effectiveness of critical mission systems for our customers. We have started to see huge potential in the value we can add across many areas of DoD, federal agencies, and the Intelligence Community. As we see an increase in digital engineering opportunities today, we are more than ever committed to the path of digital engineering transformation that we started years ago.

Emerging technology trends in MBSE, artificial intelligence, machine learning, and augmented and virtual reality (AR/VR) have influenced our strategy. We are continuing to invest in tools, infrastructure, and in enhancing our employees' skills to meet the needs of our customers.

[Digital Engineering](#) (DE) is proving to deliver efficiency and greater capability across the board. We are recruiting for higher-end skills, and we are approaching programs of higher complexity with greater agility and efficiency than ever before. The use of AR/VR environments is allowing a level of collaboration between our engineers and customers that we have never had before. The pace of technology advancement is remarkable, and digital [MBSE approaches](#) has allowed us to accomplish activities in hours versus what used to take weeks. These approaches are also enabling the creation of digital twins for true virtualization of critical "no fail" weapons systems to optimize current system performance, to predict future performance, and enhance system readiness through predictive maintenance and analytics.

We continue to invest in applying model-based methods and applying them to solve hard technical problems or existing problems in faster and more effective ways. We are doing this through carefully planned pilot projects targeted at real customer needs and problem sets.

Examples of these methods include:

- Integrated system architecture based on cross-domain models connected by a digital thread for architecture design trades
- Model-based system test and evaluation method for system functional IV&V automation
- System availability modeling and dynamic data dashboards
- Weapons system operational sequence and behavior modeling for functional verification
- Model-based cybersecurity risk assessment and RMF automation
- DevSecOps for mission-critical software lifecycle support

In our Digital Engineering Lab in Maritime Plaza, Washington D.C., we implemented a high-fidelity VR and AR system. We are developing digital twin techniques in real-time, collaborating on engineering design, performing interactive system maintenance, and providing immersive end-user/support training. Our systems engineers at BAE Systems' Digital Engineering Capability Lab in Utah apply a model-based approach to post flight test analysis, based on [operational flight](#) test data. They use a custom physics-based six degree of freedom model operating in our customer's model based engineering environment that simulates rocket trajectories to research a flight test anomaly.

Work with us!

If you are a skilled engineer looking for a challenging yet rewarding career in the defense space, and you are ready to join us in the digital transformation of the systems engineering discipline, please visit our Engineering and Technology careers [webpage](#).

Disclaimer and copyright
This document gives only a general description of products and services and except where expressly provided otherwise shall not form part of any contract. From time to time, changes may be made in the products or conditions of supply.

© 2020 BAE SYSTEMS. All rights reserved.
BAE SYSTEMS is a registered trade mark of BAE Systems plc

BAE Systems, Inc.
Intelligence & Security
www.boesystems.com

Enabling secure cyberspace and information operations missions through Federated Secure Cloud

Not only are we innovating in the digital engineering space, bringing breakthrough technologies and solutions to our customers across many different missions and platforms, but we are also innovating with our [Federated Secure Cloud](#) (FSC) framework.

As more and more agencies are moving to the cloud, it is obvious why: The cloud offers agility, access to platforms and software services, and additional capabilities with decreased hardware costs and expense. Would you rather build a car from scratch or just take a ride-share service to get to the airport? With the cloud, the same concept applies: There are more options, it is more flexible, and you don't have to start from scratch with millions in CAPEX.

However, the most important detail to focus on when it comes to cloud migration is the security of the cloud environment. BAE Systems has designed some of the most secure digital workspaces for DoD and the intelligence community. We have designed and implemented secure clouds ranging in classifications from controlled unclassified information (CUI) and the upcoming Cybersecurity Maturity Model Certification (CMMC) to the highest levels of top secret Government classifications and everything in between. To ensure these levels of security, one must understand the complexities of cloud and how to secure workloads in compliance with all applicable Government guidance and regulations.

BAE Systems is beyond just moving to the cloud: We are moving to the cloud in the most secure way. We understand the ever-changing cloud capabilities, compliance with Government regulations and standards, unique mission requirements, and how to design for cost efficiency. In fact, we are a leader in migrating software and solutions to the Commercial Cloud Services (C2S) AWS Top Secret cloud Region for the Intelligence Community. For example, BAE Systems achieved Authorization to Operate (ATO) on the most secure on-premise cloud deployment for the intelligence community at the time and it was authorized under ICD 503 as High, High, Moderate, with Int-C and Privacy overlays. If we can secure systems in the highest security levels for the Federal Government, then we can also design systems to meet a wide range of security needs to meet any mission requirement.

BAE Systems' FSC is built on the lessons learned of a multitude of BAE Systems Government contracts to meet very stringent security controls and testing activities. While meeting the full set of applicable security controls for the

given security classification and mission use, FSC delivers the core set of technical controls, to include test suites for each of the controls, necessary to achieve successful ATO. Security controls, best practices, and extensive ready-to-tailor documentation offer significant schedule and cost savings to an agency to rapidly consolidate data centers, and achieve ATO with a minimum timescale possible.

BAE Systems currently supports multiple DoD and intelligence customers across multiple security classifications in the areas of Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS), and Software-as-a-Service (SaaS.) The company migrates, operates, and sustains multiple mission critical and classified workloads. Our experts have migrated large commercial off the shelf and Government applications, built a C2S micro-services layer for a large IC enterprise, and deployed AWS Snowballs globally.

FSC operates on a federated cloud platform and meets Defense Federal Acquisition Regulation Supplement (DFARS) requirements, establishing a complete, trusted, and secure cloud under strict standards set forth by DoD. Not only are agency network administrators more aware and have more control, the FSC's embedded network-monitoring capabilities also offer administrators a greater understanding of their users, data, infrastructure, and tools. Instead of managing, monitoring, and securing dozens of networks separately, the FSC administrators can instantly assess the performance of the entire cloud's secure operating environment via specialized, user-friendly dashboards.

The FSC platform allows agencies to offer users common access to a customized catalog of services. There are also optional managed services, which include an enterprise help desk, system management functions, and agency-specific application marketplaces, where users can instantly download and access the latest mission applications, software tools, and other pay-as-you-go services. The flexible cloud framework enables agencies to add additional customer features quickly as mission priorities or needs evolve. We employ industry standards in our managed services line of business and have added to those practices a suite of custom tools and procedures, adaptable to each customer environment.

A key to our success is our appropriately cleared, trained, and certified staff. We provide free training to our employees in cloud related skills and incentivize certifications with bonuses for obtaining certain in demand certifications.

Disclaimer and copyright
This document gives only a general description of products and services and except where expressly provided otherwise shall not form part of any contract. From time to time, changes may be made in the products or conditions of supply.

© 2020 BAE SYSTEMS. All rights reserved.
BAE SYSTEMS is a registered trade mark of BAE Systems plc

BAE Systems, Inc.
Intelligence & Security
www.boesystems.com

AWS Partnership

BAE Systems is an [AWS Premier Consulting Partner](#) and holds AWS Competencies as a Public Sector Partner, DevOps, and Public Safety & Disaster Response. BAE Systems is a leading contractor for production workloads in the AWS Top Secret Region across 10 distinct programs. We perform services and development around cloud cost optimization, performance enhancement, and data analytics.

We're always looking for new and emerging partnerships. If you're interested in partnering with us, please contact us today.

E. Don DeSanto, Director of Strategic Partnerships
ellery.desanto@baesystems.com
(571) 477-4129

About BAE Systems

BAE Systems is a global defense, aerospace, and security company. BAE Systems enables the U.S. Government to transform data into intelligence and provides systems, hardware and software engineering, integration, and sustainment support for critical military platforms and systems. We provide services and products to the DoD, the intelligence community, and federal/civilian agencies around the world. Our services include innovative, mission enabling enterprise, engineering and analytic solutions, application development, Tier 2/3 support, Operations and Maintenance, and support services that enable national security and critical infrastructure customers to perform their mission and protect their data and networks.

Contributors:

- Jon Dorn, Vice President of Business Development for BAE Systems Intelligence & Security
- Mark Keeler, Vice President and General Manager of BAE Systems Integrated Defense Solutions
- Kevin McCarthy, Chief Technology Officer for BAE Systems Intelligence Solutions
- Gan Wang, Engineering Authority for BAE Systems Integrated Defense Solutions

Disclaimer and copyright
This document gives only a general description of products and services and except where expressly provided otherwise shall not form part of any contract. From time to time, changes may be made in the products or conditions of supply.

© 2020 BAE SYSTEMS. All rights reserved.
BAE SYSTEMS is a registered trade mark of BAE Systems plc

BAE Systems, Inc.
Intelligence & Security
www.baesystems.com