EDGE Lab

Technology Performance, Evaluation, and Integration

The EDGE Lab assists public sector agencies throughout the program development life cycle, working to create, evaluate, and test innovative and pragmatic solutions that enable seamless technology transitions and inform acquisition decisions.

The EDGE Lab works with civilian and national security government sponsors to integrate, test, and validate hardware and software applications, leading to innovation, risk reduction and cost savings. The lab provides enabling infrastructure and possesses an extensive array of hardware resources readily available to support sponsor mission challenges through the full acquisition lifecycle - identifying the problem, defining the requirements, developing advanced prototype solutions, and conducting field testing and deployments.

The EDGE Lab currently focuses on six areas of engagement:

Hardware Integration and Testing

Offering a real-world, hardware-based environment for the development of public safety command, control, communication, computers, cyber and intelligence (C5I) systems. The lab performs rapid prototyping, concept exploration, and operational fielding with a focus on communication networks (e.g., 5G, SATCOM, WIFI, Mesh, IoT, etc.) and sensor systems (e.g., Cameras, EO/IR, RADAR, PNT, UAS, CubeSat, IoT, etc.). With the ability to work from the physical layer up to the application layer, the lab develops, evaluates, and deploys fit-for-mission edge and mobile platforms services and applications.

Resilient Space

Satellite operators provide critical services across many sectors of the U.S. economy and (as with every other corner of society) are potential targets for the increasing velocity and impact of malicious cybersecurity events. The lab improves the cybersecurity of commercial spacecraft through analysis, developing new standards and guidelines, and creating tools in collaboration with the commercial satellite sector, academia, technology vendors, and other stakeholders. The lab hosts a CubeSat with an embedded systems camera along with a modeled ground segment to explore methods to strengthen the cybersecurity of satellites by producing recommendations composed of open-source and commercially available components that commercial satellite operators can modify, adapt, and implement.

EDGE Lab's unique capabilities.

- Connects technical organizations and technology investments, providing extensive hardware resources and infrastructure to effectively support sponsor mission challenges.
- Established relationships with vendors for access to beta releases and special features; ability to provide an unbiased comparison of vendor technologies.
- Experienced with government-off-the-shelf (GOTS) equipment and software.
- RF Channel Emulator offering test and measurement solutions that simulate the effects of signal interference on wireless transmissions, enabling users to emulate a real-world RF environment in the lab.
- 3U Space rated Cubesat with camera payload capable of running on board cyber assessments.
- Outdoor test range with FAA waiver for Remote ID, strong operational security, 5G UAV connectivity, and thousands of acres of aerial access.
- Testing, evaluation, and prototyping of smart cities technology in secure laboratory and real-world venues.
- Enterprise data interchange bus that allows for the interoperability of disparate sensors and cameras and integrates them into a unified common operating picture.
- Centrally located in Washington DC Metro area.
- Demonstrated ability to support complex projects in the lab and in the field for both the civilian and national security domains.

MITRE

SOLVING PROBLEMS FOR A SAFER WORLD®

Smart Cities

Cities around the world are striving to become "smart" by taking advantage of new sensor technologies and the massive amounts of data they produce. Developing new analytics based on these technologies can help cities better manage the challenges of urbanization by making cities safer, more efficient in delivering services and resources, and more responsive to citizens' needs. But smart cities need ways to embrace smarter engagement with stakeholders and tools to support decision-making. The lab advances cities and transportation public safety technology through testing, evaluation, and prototyping in laboratory and real-world venues.

The Range

Supporting more than 20 years of work in drone technology and applications, this developing site in Orange County, VA serves as a proving ground for MITRE's technologists, U.S. government sponsors and first responders to develop, test, and evaluate the newest advances for robotics, communications, autonomous systems, drones, and counter-drone systems. The Range offers 16 acres dedicated to MITRE with thousands of acres of aerial access fit for operational security.

Health Services, Device Integration, and Security

Connected medical device technology has revolutionized patient care. The ability to utilize data obtained from these devices is supported by a robust but vulnerable information technology system, including multiple electronic health record systems. These improvements to care come at a cost: the need to keep these devices safe from cyber risks. As medical devices increasingly connect to the internet, all private and public stakeholders must continue to prioritize device cybersecurity for patient safety. The lab builds on a substantial track record of MITRE's work with the Food and Drug Administration to develop cybersecurity rubrics and frameworks to help ensure trust in our healthcare system is not being eroded by cyber-physical attacks.

Resilient Critical Infrastructure and Cyber

Bridging public and private sectors to protect critical infrastructure with a mission-driven approach that brings a deep understanding of operational technology and adversarial behavior. The lab protects infrastructure including operational technology, industrial control systems, and cyber-physical systems by developing the capabilities to detect, re-create, classify, and characterize the exploitability of vulnerabilities. By increasing engagement across the public and private sectors, the lab shares knowledge and data to better identify plausible attack scenarios and collaborate with manufacturers to evaluate equipment and systems.

Learn more

To learn more about how EDGE Lab can help you address your unique challenges, contact EDGELab@mitre.org

ABOUT MITRE

MITRE's mission-driven teams are dedicated to solving problems for a safer world. Through public-private industry partnerships and six federally funded research and development centers (FFRDCs) that we operate, we work across government to tackle challenges to the safety, stability, and well-being of our nation.

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