Network Reconnaissance & Mapping

Adaptive and iterative process to identify and map network vulnerabilities

Conventional approaches to scanning networks to identify security issues can easily produce a high volume of data with little value—or worse, an incomplete picture of a network or falsely identified security issues. Extensive analysis is required to achieve complete insight into the behavior and security of a large scale network.

Building on years of experience in network reconnaissance and analysis, CACI provides an adaptive, iterative process that allows us to identify target network infrastructure, visualize network behavior, and identify potential security vulnerabilities within a network. Our network reconnaissance and mapping solutions enable efficient insight into the large quantities of data required for in-depth network analysis.

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For more information about our expertise and technology,
visit: **www.caci.com**

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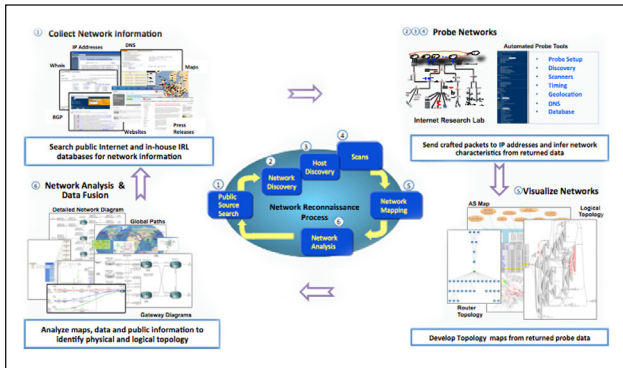
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Figure 1: CACI's network analysis process: an iterative approach to performing large scale network mapping
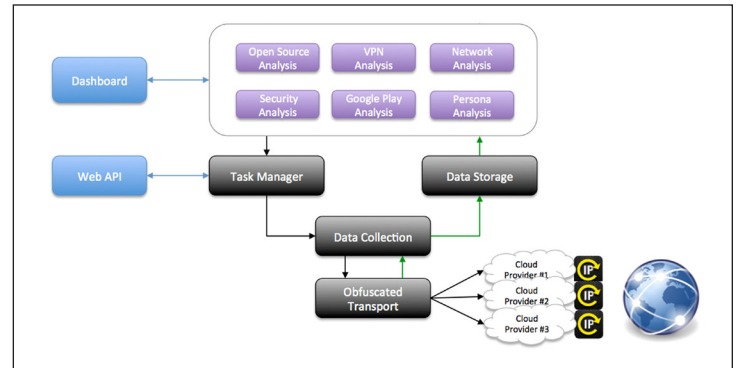

Figure 2: Micro-service based infrastructure for large-scale analysis

CACI's network analysis process includes collection, probing, visualization, and data fusion

- **Collection:** We subscribe to multiple data sources and pull down large data sets to our local repository. Access to this local data repository allows us to perform queries without being monitored by a third-party. During this part of the process, we also collect open-source information through Internet searches using boutique search engines.

- **Probing:** Network infrastructure and tools allow us to perform large-scale network probing in order to identify hop-by-hop logical paths to/from various devices connected to the Internet. This infrastructure allows us to select Internet locations from which to launch probes. This probing activity is performed across an obfuscated network of nodes to reduce our lab's network footprint.

- **Visualization:** CACI's tools enable a human-in-the-loop model to more effectively analyze and identify network weaknesses through digestible visualizations, and help to expedite the data fusion process.

- **Data fusion:** CACI's analysis process and tools allow us to develop detailed, device-level diagrams that identify which logical and physical interfaces are globally reachable on a router, firewall, or switch. We can also produce detailed diagrams of observed network behavior and identify the areas of weakness in security, such as single points of failure, open ports, unnecessary or unpatched applications.

Obfuscated analysis

Our network infrastructure of routers, firewalls, switches, servers, cloud, and web services allows us to perform collection and probing through an obfuscated network that anonymizes our web requests and probes. We are also able to use this infrastructure to simulate, emulate, and reproduce network behavior that we are observing in a target network.

The dashboard interface in Figure 1 allows the analyst to refine the network map with just a few clicks, freeing up time to perform custom analysis of specific portions of the network.

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