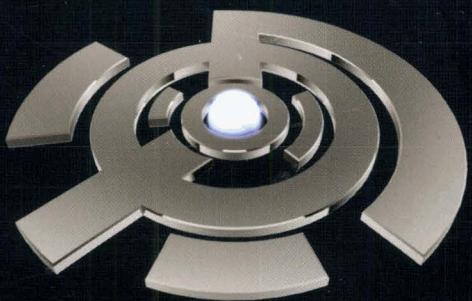


Enabling Secure Internet Operations



ION™

INTERNET OPERATIONS NETWORK



ION™

Enabling Secure Internet Operations

ION, the Internet Operations Network, is the only vetted and reliable resource that enables online non-attribution at the most critical level.

ION provides critical capabilities that enable government organizations to securely collect online intelligence and defeat the efforts of cybercriminals and terrorists.

Mission Threats in the Cyber Battlespace

Operating on the Internet presents a real and present danger for government investigations, intelligence collection, and other mission-critical operations. While some government leaders and decision-makers are aware of these threats, there still exists a gross misperception that “no one can see what we do online.” The truth is, even simple search engine queries leave digital footprints that can be used by targets for counterintelligence measures.

Example of identity information derived from an unprotected IP address



Anti-virus and firewalls are commonly used tools to protect organizations from “inbound” threats, but do nothing to protect government IP addresses during online investigations. Organizations must protect their “outbound” traffic (IP addresses) to truly secure their online missions. Without this critical security component, they put their operations at risk of the following counteractive measures:

When you surf the Internet unprotected, you expose your IP addresses and network identities – putting your mission in jeopardy.

• Internet Counterintelligence

Using simple web analytics, any adversary can capture IP addresses, allowing them to monitor online activities, aggregate data, and obtain confidential information using reverse engineering techniques. Detection, deterrence, and exploitation of adversary activities is as important in cyberspace as anywhere else.

• Website Blocking and Spoofing

A website can block incoming requests based on an organization’s IP address, or simply make it look like the website no longer exists. In addition, they can redirect government recognized website visitors to “spoofed” sites that contain misleading information created specifically to thwart investigations.

• Risks to U.S. Information Operations

With minimal information, criminals and terrorists can uncover confidential plans and jeopardize entire operations, resulting in exposure, millions of dollars lost, and undue risk to the lives of personnel, assets, and informants.

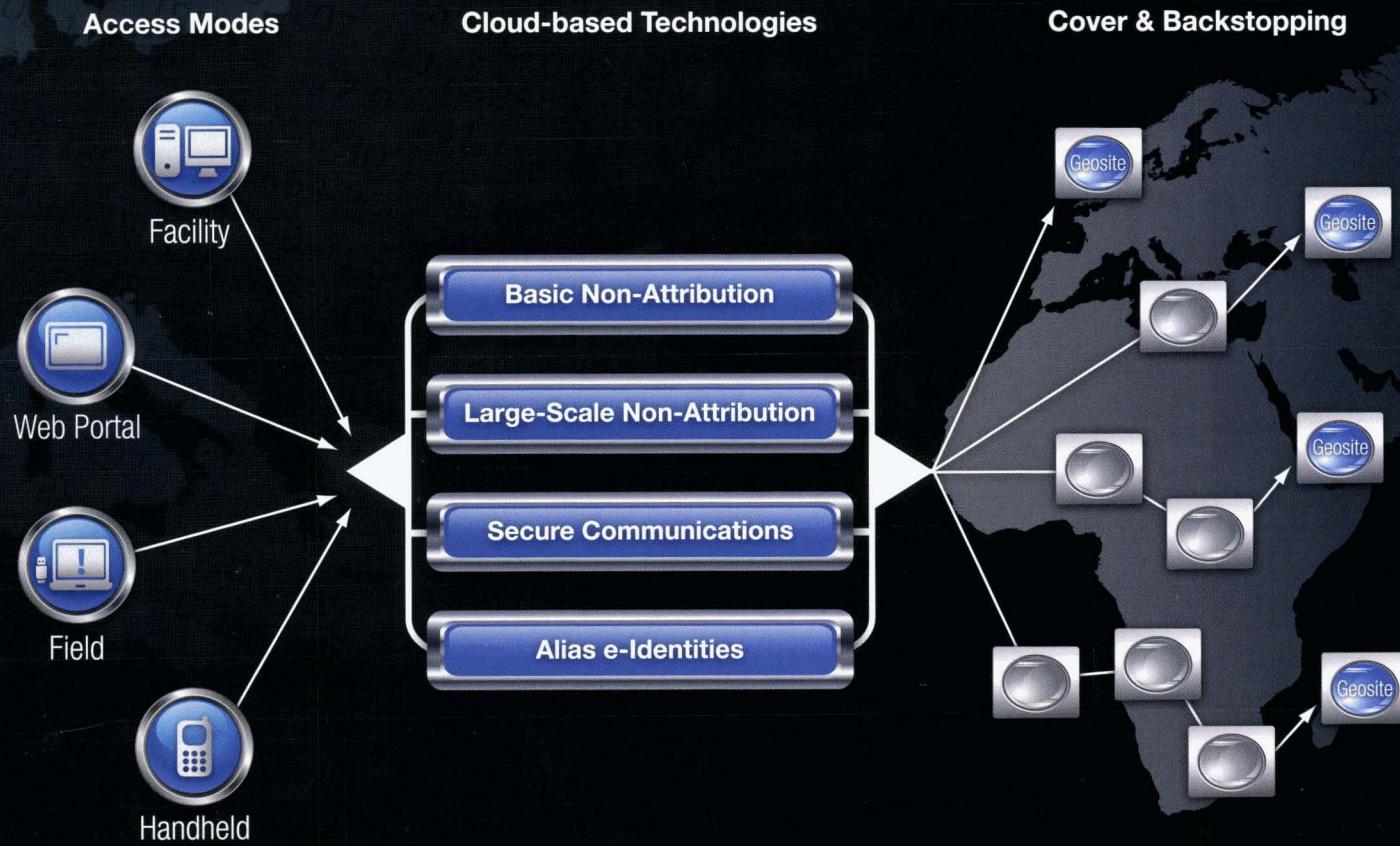
While there are other resources that mask IP addresses, they have not been architected for the specialized requirements of government operations. Tor, for example, suffers unreliable availability and lacks protection from nefarious parties running malicious nodes.

ION: The Internet Operations Network

ION provides solutions that protect mission-critical online operations. Users experience fully managed, customizable, non-attribution solutions specifically designed to meet the complex security needs of government operations.

ION: The Internet Operations Network

ION, Ntrepid's collection of tested and proven non-attribution tools and technologies, allows organizations to hide their true IP identities as they carry out Internet operations. Proprietary technologies, high performance access, and hardened networks combine for a managed set of solutions that meet the parameters of any mission.



Mission: Research & Targeting

Basic Non-Attribution for Analysts

ION's proprietary *ION Rotator*™ technology provides random, rotating IP addresses and domains that are innocuous and untraceable to the user during OSINT gathering and analytic efforts. Organizations will experience seamless online data collection with technologies that allow them to blend in to the general visitor population of any target website. In addition, CONUS and OCONUS Geosites provide strong backstopping and the ability to blend in with specific groups.

Mission: Large-Scale OSINT Collection

Robust Solutions for Secure Web Intelligence Collection

Large-scale collection efforts, by their nature, leave a large and easily detected footprint. ION's proprietary *ION Exploder*™ technology provides anonymous and secure access to website information by providing thousands of non-attributable IP addresses that spread out user patterns and activity. Harvesting traffic blends neatly into the general visitor population, enabling information assurance during web harvesting, unstructured data collection, Internet "chatter" analysis, and other research initiatives.

Solutions for Secure Internet Operations

ION's reliable non-attribution technologies allow clients to define custom solutions architected specifically for their needs. *ION* solutions combine ***ION Access Modes***, ***Cloud-based Technologies***, and ***Cover & Backstopping*** options to deliver a fully-managed service for secure online operations.

Access Mode Options

Each *ION* solution provides options to suit your specific access venue, including facility, web portal, field, and handheld capabilities.

Cloud-based Technologies

ION's cloud-based technologies allow government clients to maintain complete control of their online presence, activities, and identities during Internet operations. From basic non-attribution for research and targeting to more robust solutions for multi-layered operations, *ION*'s proprietary technologies provide a set of tools that can be customized to meet the specific needs of any online operation.

Cover & Backstopping

ION technologies are built to meet the security needs of any mission. Using non-attributable CONUS and/or OCONUS IP addresses and a massive IP space across many entities and IP blocks, our team of backstopping experts can design a solution that provides multiple layers of obfuscation from even the most sophisticated targets. Global points of presence (*ION Geosites*) can be integrated into any *ION* solution, allowing users to appear to originate from a particular region. Communication paths, funding mechanisms, corporate identity, and back story can all be customized to enable specific operations.

Mission: Asset Communications

Critical Tools for Non-Secure Environments

Communicating with assets or undercover operatives in potentially hostile network environments is vital to many missions. *ION* provides a closed-circuit, hidden communications system for encrypted, secure communications over the public Internet. Organizations can connect at headquarters, or remotely through CONUS and OCONUS Geosites in a way that looks like completely ordinary Internet activity. The system provides built-in protection so that any compromise of one asset will not ripple to others.

Mission: Persistent Alias e-Identities

Plausible, Repeatable Personas for Deep Investigation

Creating believable online personas is critical when working in alias or in situations that require online identification or authentication. *ION Mapper™* technology allows organizations to create and manage multiple alias e-identities customized to each target. By providing a unique IP address for each e-identity, communications always appear to come from the same location and alias. Additionally, the technology minimizes human error by compartmentalizing each alias identity, ensuring that users never jeopardize their true identities.

Ensuring Program Success

When putting together a solution for Internet operations, it is imperative that organizations assess the complex levels of risk that exist for each mission. The list below comprises critical considerations that must be mitigated to ensure complete operational success.

Risk Mitigation Considerations

Operational Risk

New efforts to create non-attribution solutions usually suffer from a lack of experience in social science expertise. Privacy and non-attribution services are complex, specialized solutions which require a mix of technical expertise and social science knowledge to truly achieve operational non-attribution solutions.

The nature of government operations requires a level of experience and sophistication that transcends traditional solutions and providers. ION's vetted, reliable, proven technologies provide turnkey information operation tools for the most critical aspects of online missions.

Development Risk

Without experienced guidance, it is difficult to capture all of the requirements for effective non-attribution; version 1.0 solutions rarely deliver the desired effectiveness and ease of use. Solutions must be carefully honed and proven through years of field-testing in law enforcement and intelligence applications.

Intrusion Risk

No identifying information should be stored or recorded within a network. In the event of successful intrusion, no forensics or trail of online activities should ever be present.

Social Engineering Risk

Social engineering attempts must be completely assured to strike a dead end. Sophisticated backstopping that ensures that an attacker is completely unaware of the nature of the service, the provider's involvement, or the customers' identity is necessary.

Timeliness Risk

Missed deadlines can mean missed opportunities. Only existing non-attribution solutions from suppliers with proven and tested technologies can ensure the critical delivery of a fully functioning platform on a guaranteed date.

Budget Risk

Solutions that provide subscription-based pricing can help protect organizations from cost overruns and unforeseen budgetary impacts.

Internal Compromise Risk

Solution providers must ensure that internal employees have no access to the identities and activities of their customers, thus making compromise from within virtually impossible.

Security Extensibility Risk

Scalable, integrated solutions that can operate under the highest security threat models and requirements are vital for true non-attribution services.

Single Network Risk

ISPs are limited to providing IP space from only within their own networks. Solution providers should have the capability to acquire network space from many independent ISPs around the globe.

Additional Identification Risks

Simply hiding your IP address is not enough. To ensure continuous protection, solutions must constantly monitor blacklist and blocking sites, provide billions of pages of cover traffic, and stay completely up-to-date on the algorithms used for network identification.

Backstopping Penetration Risk

Extensive, real world operational experience in the selection of appropriate backstopping levels must be provided to ensure the highest level of security. Plausible, appropriate levels of obfuscation are necessary to mitigate even the slightest exposure of operations.

Additional Capabilities

In addition to the core capabilities highlighted thus far, *ION* also provides other types of operational solutions. A few examples of these further capabilities include:

Concealed Communication Mechanisms

Many missions require the ability to securely and surreptitiously communicate over possibly hostile, unsecure, indigenous Internet resources. Our solutions leverage OCONUS websites and other ordinary looking services, backstopped by entities and points of presence that will withstand substantial scrutiny by targets, to ensure that private communications remain undetected. Within the hidden communications, we use strong cryptography to ensure the security and integrity of the content.

Watermarking and Internet Tracking

ION provides a variety of capabilities to track the dissemination of information planted in chat rooms and forums, and the specific activities of hostile network denizens. This capability allows users to discover how information is passed through hostile organizations. In addition, our technologies provide solutions to track untrustworthy or suspicious contacts.

Honeypots and Misattributed Hosting

ION's capabilities allow organizations to place content or services on the Internet which appear to be owned, controlled, and located elsewhere. This enables users to attract online targets, extremists, and other persons of interest. OCONUS points of presence enable any website to originate from, and appear to be operated from, the appropriate location. The actual servers may be in the remote locations, or actually hosted in user facilities and virtually projected to the remote locations.

Blind Deconfliction

Users must ensure that they coordinate their activities to avoid duplication of efforts, or the accidental investigation of each other. This can be very difficult while maintaining security and compartmentalization of information. *ION* provides the ability for different groups to share information with complete authentication and access control while simultaneously providing anonymity with a highly secure audit trail. Contact names, email addresses, and other information can be compared with other organizations without revealing information or divulging who is asking.

Anonymous VoIP

ION can provide several different kinds of Voice over Internet Protocol (VoIP) solutions. Our disguised communications capabilities allow field operatives to make and receive calls without detection. In addition, we can enhance geographic points of presence to interface in the appropriate local telephone infrastructure to support geographic distribution of outgoing calls. For example, a user in Syria would be able to make a call that appears to originate from Hong Kong or wherever appropriate.



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