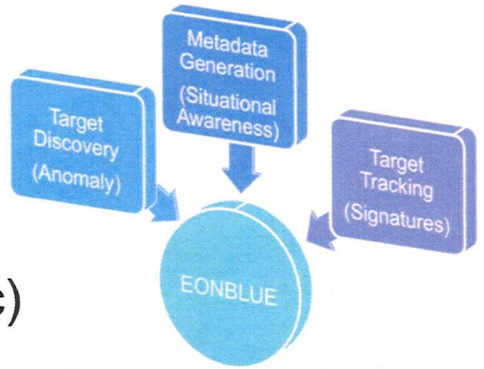
Cyber Threat Detection



- Passive Cyber Threat Detection Platform - EONBLUE
  - Currently deployed alongside traditional DNI Collection (SPECIALSOURCE, Warranted Access, FORNSAT, etc)
  - Packet Processing capability tailored to Cyber built over a 6+ year period
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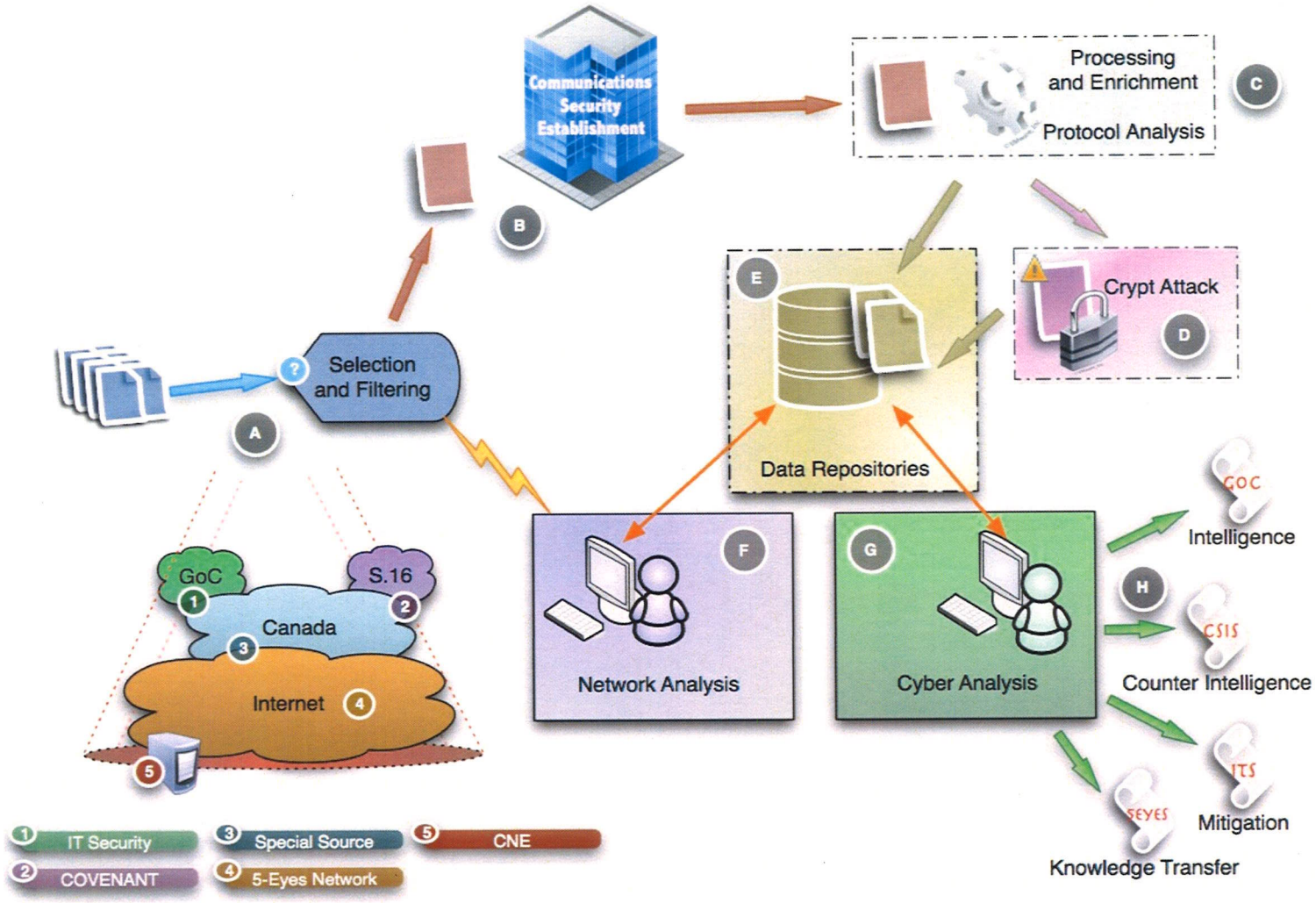
- In 2009 an average of 115,000 Traffic Items collected daily from Canadian and Allied Sources
  - Collection from allies is crucial to success, but based on IP Address collection (causes over collect, sessionization corrupts data, difficult to analyze with Cyber toolkit)
- POC: [redacted] Global Network Detection [redacted]@cse-cst.gc.ca)

Canada

Holistic Cyber Threat Capability



Canada

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CSEC – SIGINT Supporting CND

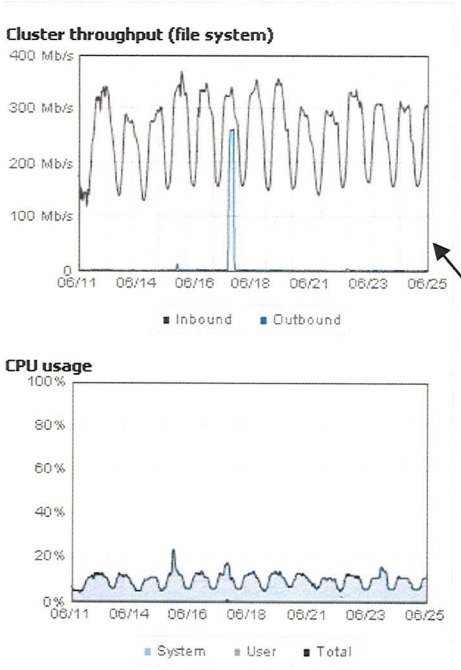
- Globally pervasive threat
  - Covered by 5-Eyes network
- Utilizing encryption
  - Subject to CSEC cryptographic attack
- Abusing telecommunications protocols
  - Understood and reverse engineered at CSEC
- Communicate using foreign languages
  - Access to CSEC and partner linguistic community
- Constantly changing modus operandi
  - Advanced signal processing analytics and anomaly detection
- Exfiltrate valuable intelligence
  - That we can collect and use to enhance our repositories
- These operations are also directed against GoC networks
  - Which we can detect and mitigate using both SIGINT and domestic sensors

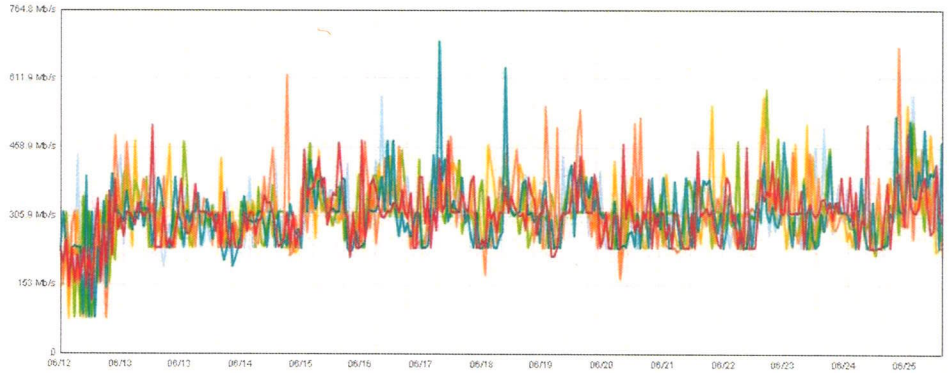
CSEC elements working as one … provides unparalleled situational awareness of the threat … monitors health and status of government networks … coupled with the ability to stop or mitigate attacks and intrusions directed against networks of importance to the GoC

Canada

Front-end Cyber Tradecraft

- Deployed high-speed clustered storage to our collection sites
  - Enables extraction / storing and processing of all HTTP metadata to identify Cyber Threat Anomalies
  - Leveraged by CSEC's network knowledge engine to facilitate DNS Response harvesting and de-duplication





Black Line: Total data into the Cluster
Blue Line: Data Outbound from SAN

Data deduplication at sight results in much better use of limited bandwidth

Data into the cluster is balanced across multiple nodes. Each color denotes a separate node, automatically dividing the load amongst all systems

Joint Capability Development

SIGINT / ITS – Cyber Threat Detection

- Fast Flux Botnet Detection – CROSSBOW
  - A target-discovery algorithm deployed at CSEC SSO sites (currently operational)
  - Detects botnets that use the DNS protocol for command and control (i.e. the technique runs exclusively on metadata)
  - Initial planning phase Tipping/Cueing trials between SIGINT/ITS and the 5Eyes (stand-alone source code has been shared with 5Eyes, i.e. through T3IO)
- "Throw-away" Cyber Threat Detection Sensor – CRUCIBLE
  - A low-cost, rapidly-deployed passive cyber threat detection sensor designed for use with TS//SI signatures in a non-SCIF environment (cyber target-tracking capability)
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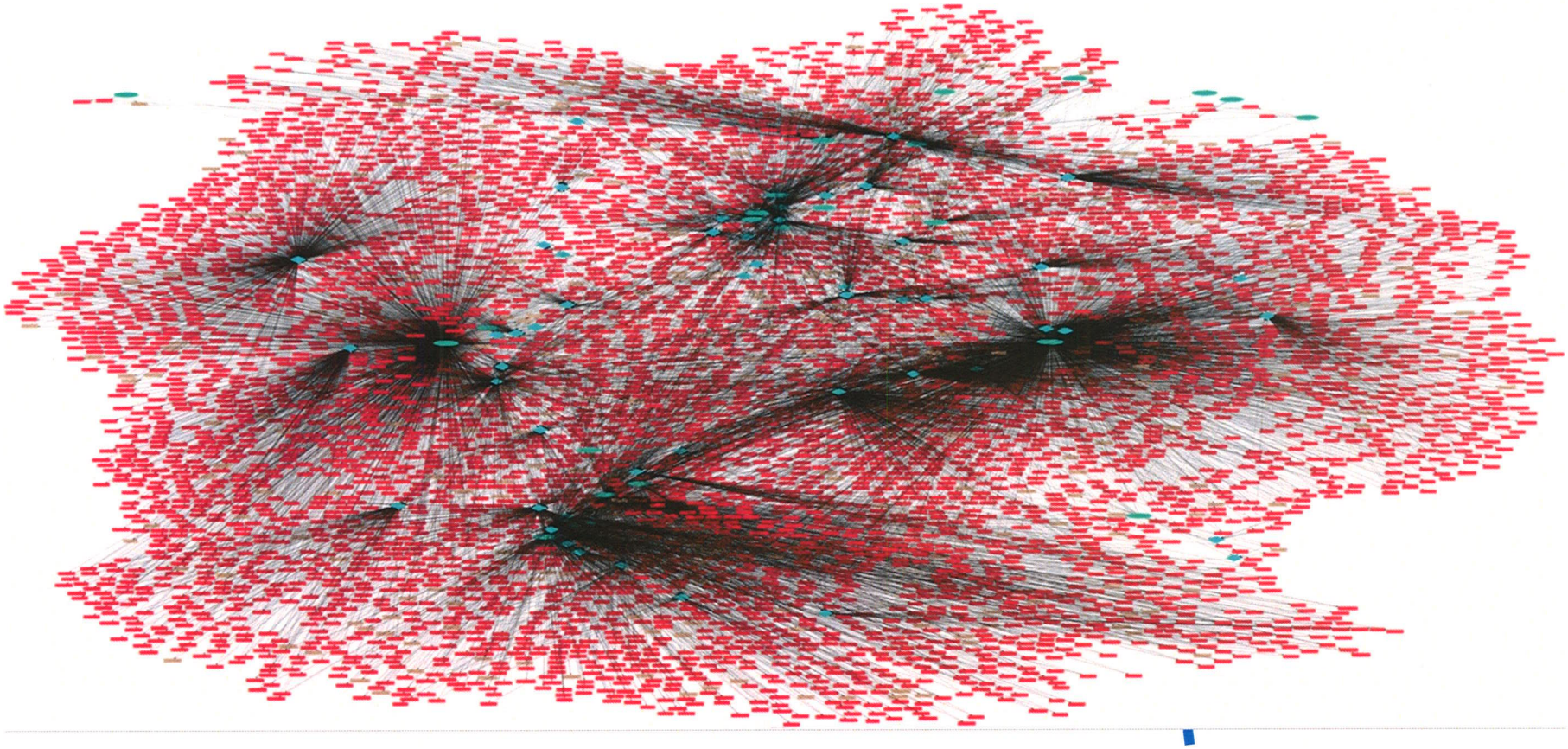
- POC: [redacted] DG ITS Operations ([redacted]@cse-cst.gc.ca)

Canada

Sample of Fast Flux Activity Detected

Square nodes: contacted by fast flux "bots"
Diamond nodes: fast flux "bots"
Oval nodes: suspected fast flux domain



1 week of detected fast flux activity for a particular fast flux domain at a CSEC access

Joint Capability Development

SIGINT / ITS – Cyber Threat Detection

- Scanning Detection - LODESTONE
  - [redacted]
  - [redacted]
  - [redacted]
  - [redacted]

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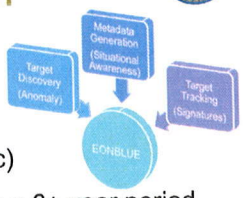
Cyber Threat Detection



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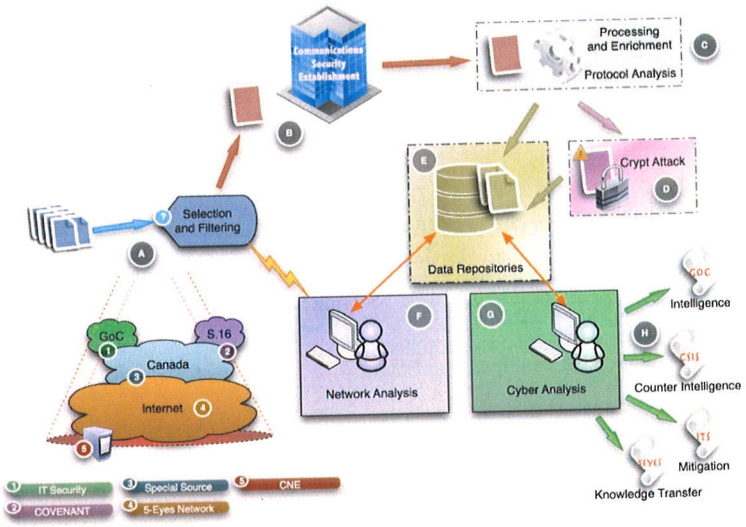

Canada

TOP SECRET//COMINT

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directed against networks of importance to the GoC

Canada

Speaker: [redacted]

-Added the health and status of Government network bullet

-Removed '4th party' and instead mention how it enhances our repositories (will introduce 4th party here)

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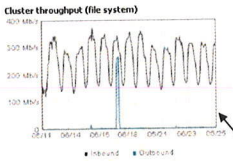

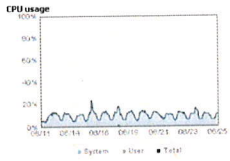

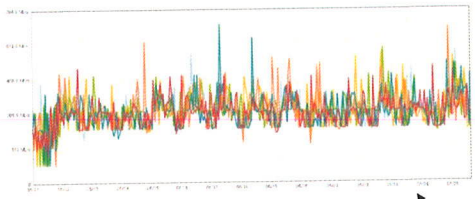

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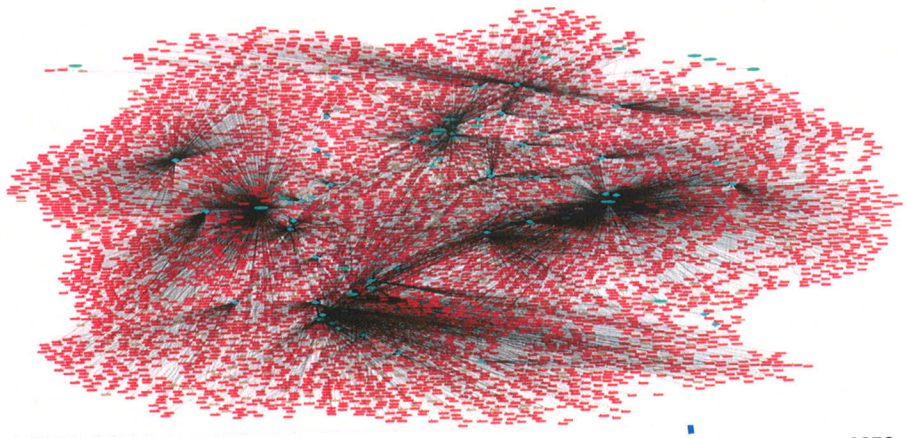

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