Juniper Sky Advanced Threat Prevention

The evolution of malware threat mitigation

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An Evolving Threat Landscape

New actors, new threats, and new technologies means the threat landscape is constantly evolving.

- State sponsored actors and targeted attacks change the landscape
- Attackers are constantly looking for, and finding, new vectors
- Security solutions need to be agile to keep up
- The impact of security breaches can't be understated

Sky Advanced Threat Prevention to the Rescue



Sophisticated Threats

Sky Advanced Threat Prevention Architecture:



The ATP verdict chain

Staged analysis: combining rapid response and deep analysis



Anti-Virus: First Pass

Overcoming False Positive (FP) and False Negative (FN) results

- Run samples through multiple AV engines
- Leverage Machine Learning to improve veracity



Final Verdict

Static Analysis: Pulling apart the code

Break the file down into "features"

- File Structure
- Meta Info (vendor, filename, etc.)
- Instruction categories used
- File entropy
- Etc. . . .

Use Machine Learning to identify what features are associated with Malware and what are associated with Benign applications.

Finally, generate a verdict based on how much "Like" Malware a sample looks





Dynamic Analysis: Sandboxing

Inside a custom Sandbox environment

- Spool up a live desktop
- Hook into the OS to record everything
- Upload and execute the suspect file
- Apply Sky's Deception and Provocation Techniques
 - The full run takes approximately 7 minutes
- Download the activity recording for analysis
- Tear down the live desktop
- Generate a verdict with Machine Learning

At release: *Windows 7.* Future: *OS X, Linux, Android, iOS*







Deception and Provocation

Deception Provoking Malware.

- Attach debuggers
- Run malware multiple times
- Actively interfere with malware operations
- Actively interfere with network communications

At FRS, Sky Advanced Threat Prevention will look for over 300 different malware behaviors and will include over 50 different deception techniques to provoke malware to expose itself.

Deception: Convince it it's on a valid target to get a reaction **Provocation:** Poke it with a stick and see how it reacts



Sandboxing: Behavioral Analysis

Behavior analysis gives us a better understanding of what a suspect file is trying to do. Some behaviors are usually considered benign, while others may be benign, but are also seen in malicious programs. Still others are usually associated with attack behaviors. Some examples:



Machine Learning

Digging through massive piles of data: letting machines do what machines do best

- Samples of "Known"Good" items
 Extract features from the good ones

These are good

Samples of "Known Bad" items

Compare a new "Unknown" to see how closely it resembles good or bad samples

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These are Bad

Why Cloud?

- Cloud environments are flexible and massively scalable
- A shared platform means everyone benefits from new threat intelligence in near real-time
- Security developers can update their defenses as new attack techniques come to light, with no delay to distribute the threat intel.
- On-site platforms offer lower efficiency, scalability, efficacy and agility.

-CLOUD-BASED AND SCALABLE -ZERO DAY THREAT PROTECTION - INTEGRATES WITH SRX SERIES NEXT-GENERATION FIREWALLS - INLINE BLOCKING -UNIQUE DECEPTION AND PROVOCATION TECHNIQUES

and provocation techniques.



Thank you

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