

APEX VPN Phases

- ► VPN Phase 1: IKE Metadata Only (Spin 15)
 - IKE packets are exfiled to TURMOIL APEX.
 - APEX reconstructs/reinjects IKE packets to the TURMOIL VPN components.
 - TURMOIL VPN extracts metadata from each key exchange and sends to the CES TOYGRIPPE metadata database. This database is used by SIGDEV analysts to identify potential targets for further exploitation.
- ► VPN Phase 2: <u>Targeted IKE Forwarding (Spin 15)</u>
 - TURMOIL VPN looks up IKE packet IP addresses in KEYCARD.
 - If either IP address is targeted, the key exchange packets are forwarded to the CES Attack Orchestrator (POISON NUT) for VPN key recovery.
- VPN Phase 3: <u>Static Tasking of ESP</u>
 - HAMMERSTEIN receives static tasking to exfil targeted ESP packets.
 - APEX reconstructs/reinjects ESP packets to the TURMOIL VPN components.
 - TURMOIL VPN requests VPN key from CES and attempts decryption.
- VPN Phase 4: Dynamic Targeting of ESP
 - Based on the value returned by KEYCARD, the ESP for a particular VPN may be targeted as well.
 - TURMOIL sends to HAMMERSTEIN (via TURBINE) the parameters for capturing the ESP for the targeted VPN.

APEX VolP Phases

- VoIP Phase 1: <u>Static Tasking of VoIP (Spin 16)</u>
 - HAMMERCHANT monitors VoIP SIP/H.323 signaling and exfiltrates only targeted VoIP RTP sessions to TURMOIL.
 - APEX reconstructs and bundles the voice packets into a file, attaches appropriate metadata, and delivers to PRESSUREWAVE.
 - This triggers a modified VoIP analytic to prepare the VoIP for corporate delivery.
- ► VoIP Phase 2. VoIP Call Survey
 - HAMMERCHANT monitors VoIP SIP/H.323 signaling and exfiltrates all call signaling metadata to TURMOIL.
 - APEX inserts call signaling metadata into an ASDF record and publishes it to the TURMOIL AsdfReporter component for target SIGDEV.

► VoIP Phase 3. Dynamic Targeting of VoIP

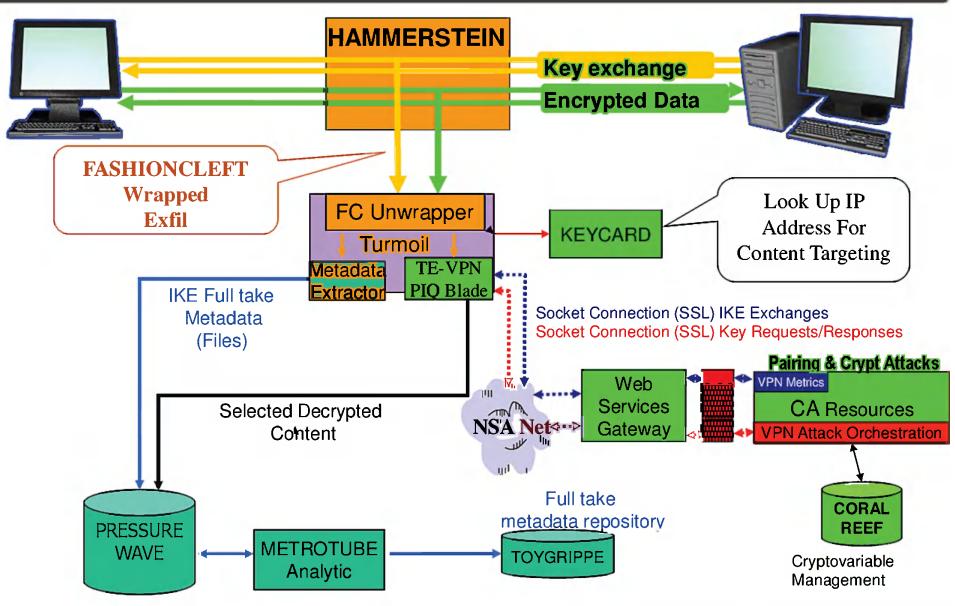
- HAMMERSTEIN captures/exfils all VoIP signaling
- APEX reconstructs/reinjects the signaling to the TURMOIL VoIP components.
- TURMOIL VoIP extracts call metadata and sends to FASCIA; checks KEYCARD for hits.
- If called/calling party is targeted for active exfil, then TURMOIL sends to HAMMERSTEIN (via TURBINIE) the parameters to capture the targeted RTP session.
- Implementation of VoIP Phase 2 and 3 will be driven by mission need.
 - Phase 3 leverages all TURMOIL VoIP signaling protocol processors to expand beyond SIP and H.323 (e.g. Skype) without additional development on the implant.



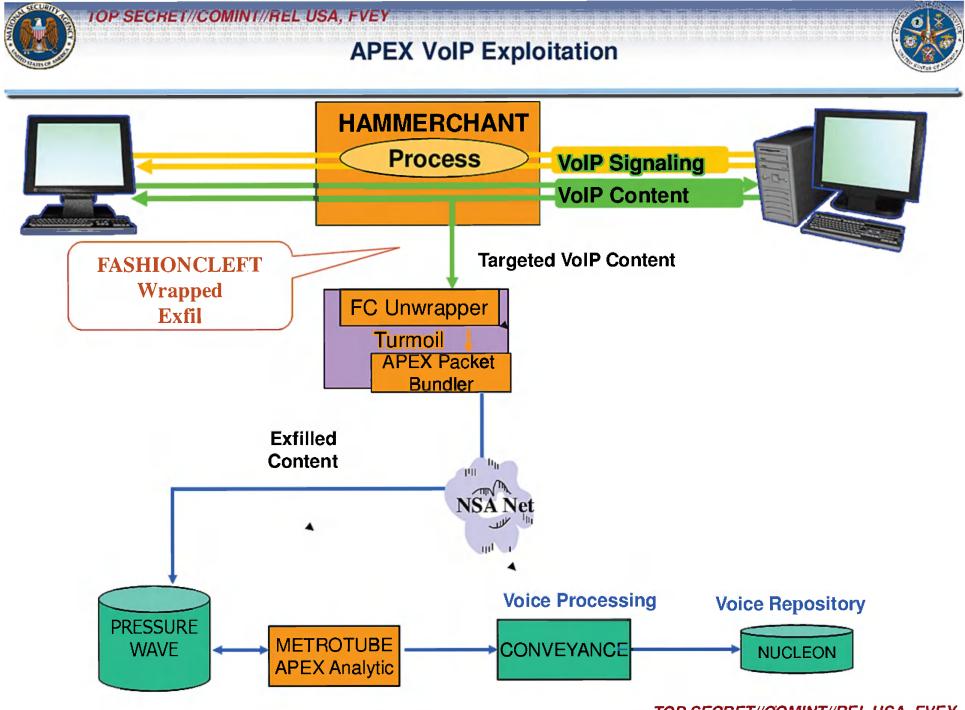
IOP SECREI//COMINI//REL USA, FVEY

APEX VPN Exploitation





TOP SECRET//COMINT//REL USA, FVEY



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