INCIDENT RESPONSE PLAYBOOKS AND WORKFLOWS

IR Playbooks

This repository contains all the Incident Response Playbooks and Workflows of Company's SOC.
Each folder contains a Playbook that is broken down into 6 section as per NIST - 800.61 r2

1- Preparation

This section should include the following informations

- List of *ALL* Assets
  - Servers
  - Endpoints (+critical ones)
  - Networks
  - Applications
  - Employees
  - Security Products
- Baselines
- Communication Plan
- Which Security Events
- Thresholds
- How to access Security Tools
  - How to provision access
- Create Playbooks
- Plan Exercises
  - Table Top
  - Hands On

2- Detection and Analysis

This section should include the following informations

- Gathering of Information
- Analyzing the Data
- Building Detections
- Root Cause Analysis
- Depth and Breath of the Attack
  - Admin Rights
  - Affected Systems
- Techniques Used
- Indicators of Compromise / Indicators of Attack
  - Tactics Techniques and Procdures (TTP)
  - IP Address
  - Email Address
  - File Hash
  - Command Line
  - etc.

3- Containment, Eradication, and Recovery

This section should include the following informations

- Isolate Affected Systems
- Patch Threat Entry Point
- Predefine threshold
  - For Customers
  - For internal systems
  - For escalations
- Preauthorized actions
  - Per customers
  - Per environment
    - Prod
    - QA
    - Internet Facing
- How to Remove the Threat on All Affected Systems
- Get Systems Operational
- Rebuilt and Resume Service

4- Post-Incident Activity

- Lessons Learn
- New Detection
- New Hardening
- New Patch Management
- etc.

Account Compromised Playbook

Scope

This Playbook covers the steps to take when accounts are compromised.
Of course, we also need to remediate the hosts where those accounts were used.

1. Preparation

▼ Expand/Colapse

- Create and maintain a list of
    - all domains owned by Company.
        - This can prevent you from taking actions against our own domains
    - all people of can register domains
- Create email templates
    - to notify all employees of ongoing phishing campaing against the organization
    - to contact hosting companies for domain(s) take down
    - to inform 3rd party to take actions against phishing on there infra (Microsoft, Fedex, Apple, etc.)
- Ensure that:
    - Mail anti-malware/anti-spam/anti-phish solutions are in place.
    - Users know how to report phish
    - Detection exists for office documents spawning processes
        - PowerShell
        - CMD
        - WMI
        - MSHTA
        - Etc.
- Perform Firedrill to ensure all aspects of the Playbook are working
    - After publication
    - At least once a year
    - Test/Validate:
        - Customer's Cards
        - Internal Contact and Escalation Paths
- Review threat intelligence for
    - threats to the organisation,
    - brands and the sector,
    - common patterns
    - newly developing risks and vulnerabilities
- Ensure appropriate access to any necessary documentation and information, including out-of-hours access, for the following
    - IR Playbooks
    - Network Architecture Diagram
    - Dataflow
- Identify and obtain the services of a 3rd party Cyber Forensic provider.
- Define Threat and Risk Indicators and Alerting pattern within the organisation’ssecurity informationand event management (SIEM) solution.

Train Employees

- Conduct regular awareness campaigns to highlight information security risks faced by employees, including:
    - Phishing attacks and malicious emails;
    - Ransomware;
    - Reporting a suspected cyber incident.

Tool Access and Provisioning

Tool1

Please referer to Tool1 Documentation

Tool2

Please referer to Tool2 Documentation

Assets List

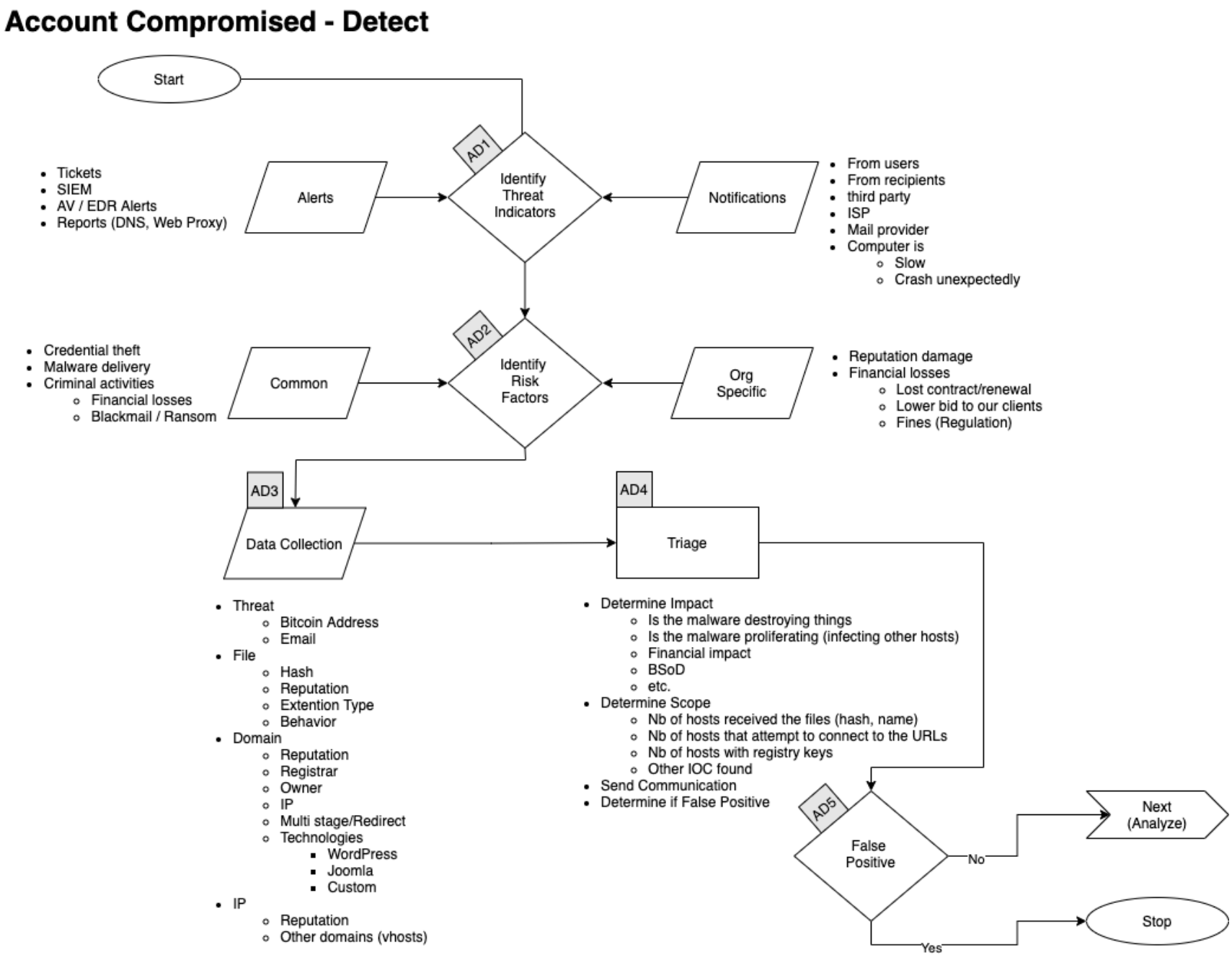
- A list of assets and owner should exists and be available for the following
  - Customers Assets
    - Owners
    - Contacts
    - Pre authorized actions
  - Company Assets (Including all filiale and business units)
    - Onwers
    - Contacts
    - Administrators
    - Pre autorized actions
- Type of assets inventory needed
  - Endpoints
  - Servers
  - Network Equipements
  - Security Appliances
  - Network Ranges
    - Public
    - Private
    - VPN / Out of Band
      - Employees
      - Partners
      - Clients

2. Detect

▼ Expand/Colapse

Workflow

▼ Expand/Colapse



Identify Threat Indicators

▼ Expand/Colapse

Alerts

Alerts are be generated by differents systems owned by the Security/SOC team. The main sources for alerts are

- Tickets
- SIEM
- Anti-Virus / EDR
- Reports
  - DNS
  - Web Proxy
- Errors from mail servers

Notifications

Notifications are comming from external sources usually via email, Teams or phone. The main sources for notifications are

- Users (internal)
- Recipents of emails (external)
- Third Parties
- ISP
- Mail Providers

Indentify Risks Factors

▼ Expand/Colapse

Common

- Credential Theft
- Malware Delivery
- Criminal Activites
  - Blackmail / Ransom

Company Specific

- Financial Losses
  - Lost of conctrat
  - Contract not renewed
  - Lower bid to our clients
  - Fines
    - Regulation

Data Colletion

This section describe the information that should be collected and documented about the incident
There is a lot of ressources to help you with that phase here

▼ Expand/Colapse
Domains

- Reputation
- Registrar
- Owner
- IP
- Multistage / Redirect
- Technologies of the site
  - WordPress
  - Joomla
  - Custom Page (credential phish)

IP

- Reputation
- Owner
- Geo Localisation
- Other domains on that IP

Categorize

▼ Expand/Colapse
Determine type of

Triage

▼ Expand/Colapse
Determine

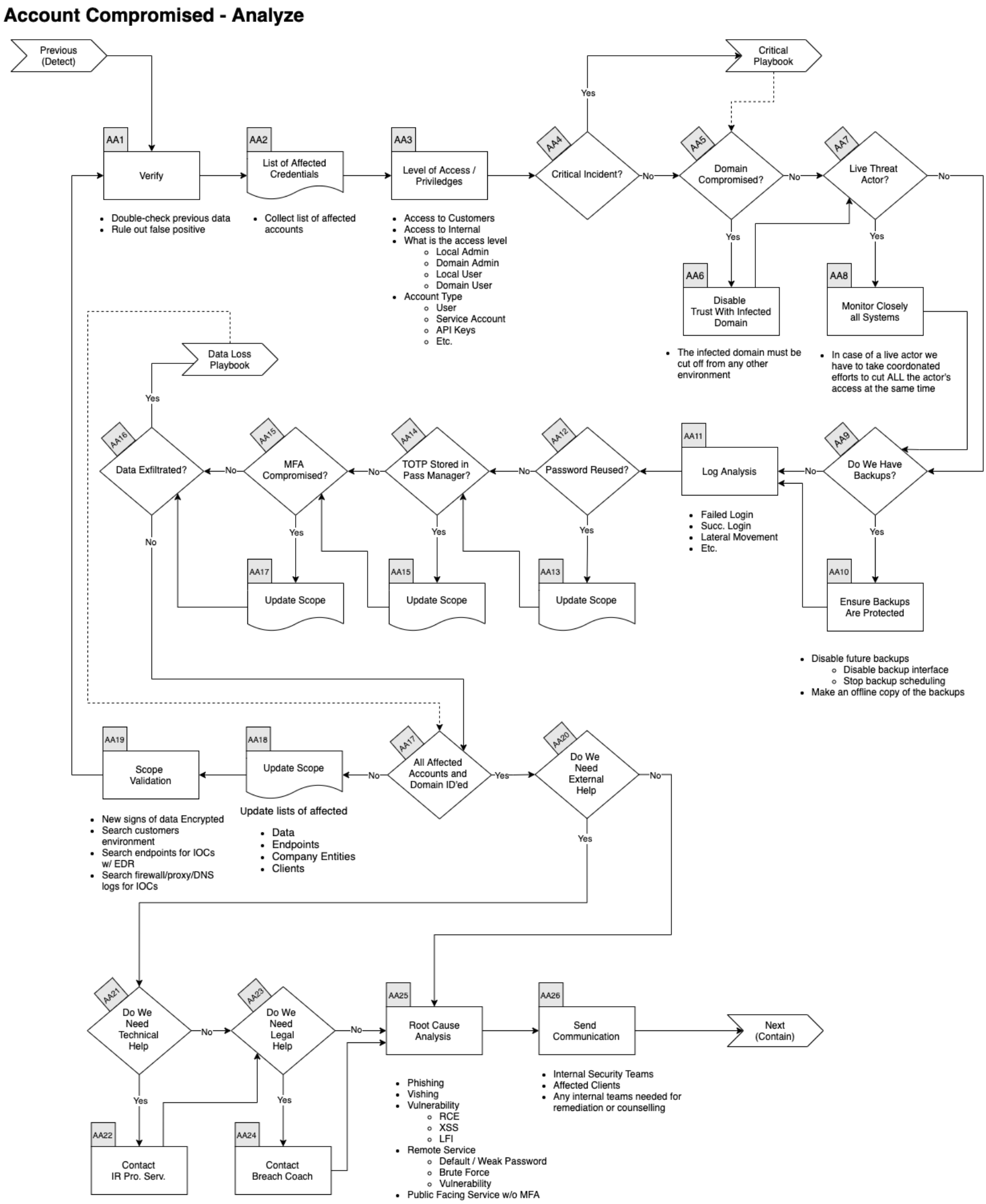
- Impact
  - Of
  - Financial
  - Data loss
- Scope (Nb of people)

3. Analyze

▼ Expand/Colapse

Workflow

▼ Expand/Colapse



AA1. Verify

▼ Expand/Colapse
In conjonction with a senior member of the SOC

- Double check previous data
- Rule out False Positive

AA2. List Compromised Credentials

▼ Expand/Colapse
In the Compromised Assets TAB of the Event Log list:

- Compromised accounts
- Compromised machines
- Compromised domains

AA3. Level of Access / Priviledges

▼ Expand/Colapse
In conjonction with a senior member of the SOC

- Double check previous data
- Rule out False Positive

Update Scope

▼ Expand/Colapse

- Update lists of
  - affected endpoints
  - affected Company Entities
  - affected clients

Scope Validation

▼ Expand/Colapse
Have all the machines been identified? If you find futher traces of phishing or new IOCs go back through this step.

When you are done identifying all compromised:

- Hosts

And investigated all:

- URLs
- Domains
- IP
- Ports
- Files
- Hash

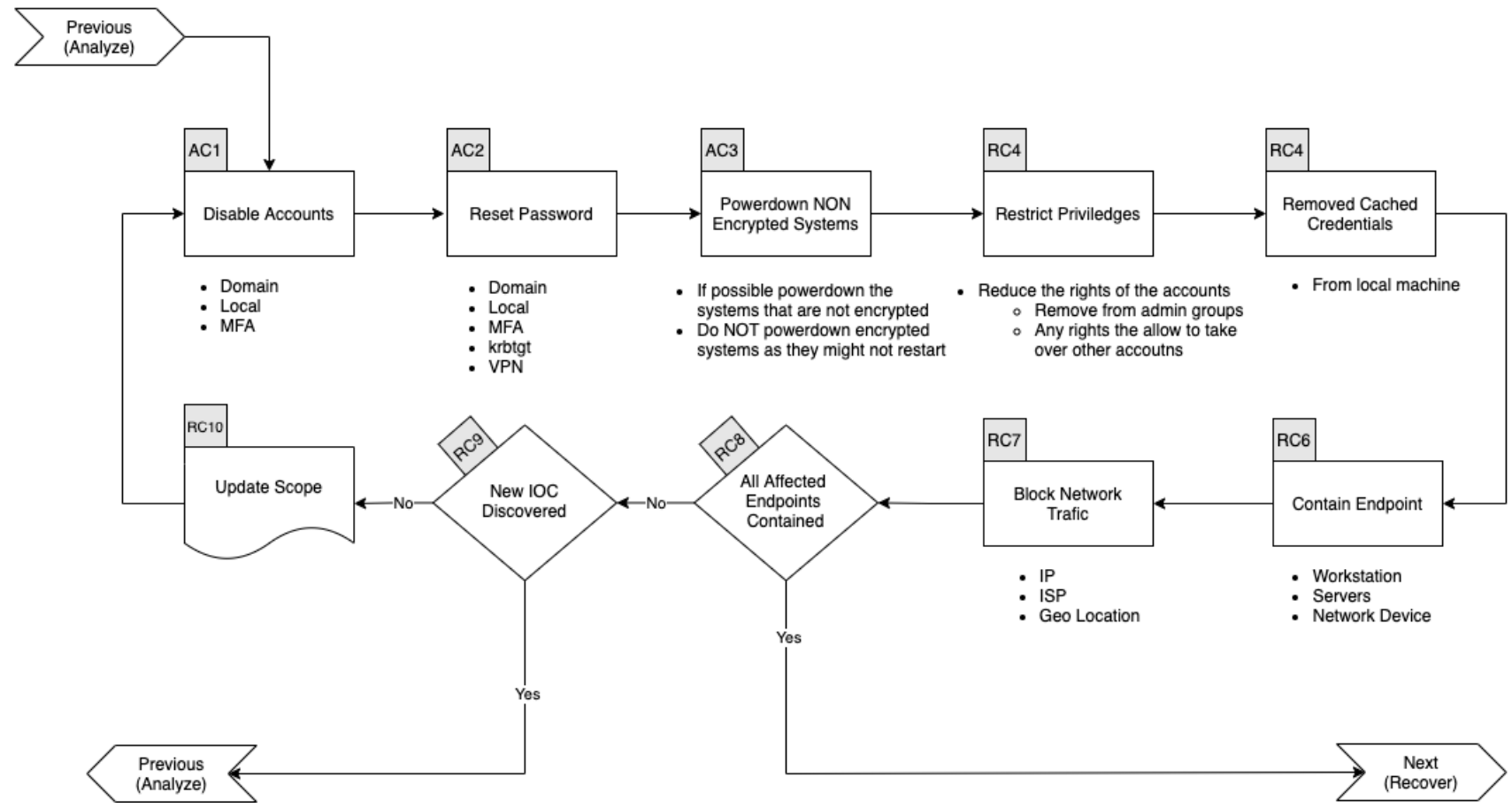
Go to the next phase <Contain/Eradicate>

4. Contain / Eradicate

▼ Expand/Colapse

Workflow

▼ Expand/Colapse



Block

▼ Expand/Colapse

- Update FW, Proxy, etc. rules
- Blackhole DNS
- Submit to Partners
  - AV/EDR Vendor
  - Web Filter Vendor
  - etc.

Validate User's Actions

▼ Expand/Colapse

Malware Infection?

▼ Expand/Colapse
If there was malicious attachments that were openned we need to assume the endpoint(s) was/were infected by a malware.
Please continue to the Malware Playbook

Close Monitoring

▼ Expand/Colapse

- Monitor for
  - Related incoming messages
  - Internet connections to IOC
  - New files that matches hashes identified

All Affected Endpoints Contained?

▼ Expand/Colapse
If all affected endpoints have been contained, you can go to the next phase, otherwise continue bellow.

New IOC Discovered?

▼ Expand/Colapse
If there was new IOC discovered, go back to the Analyze Phase

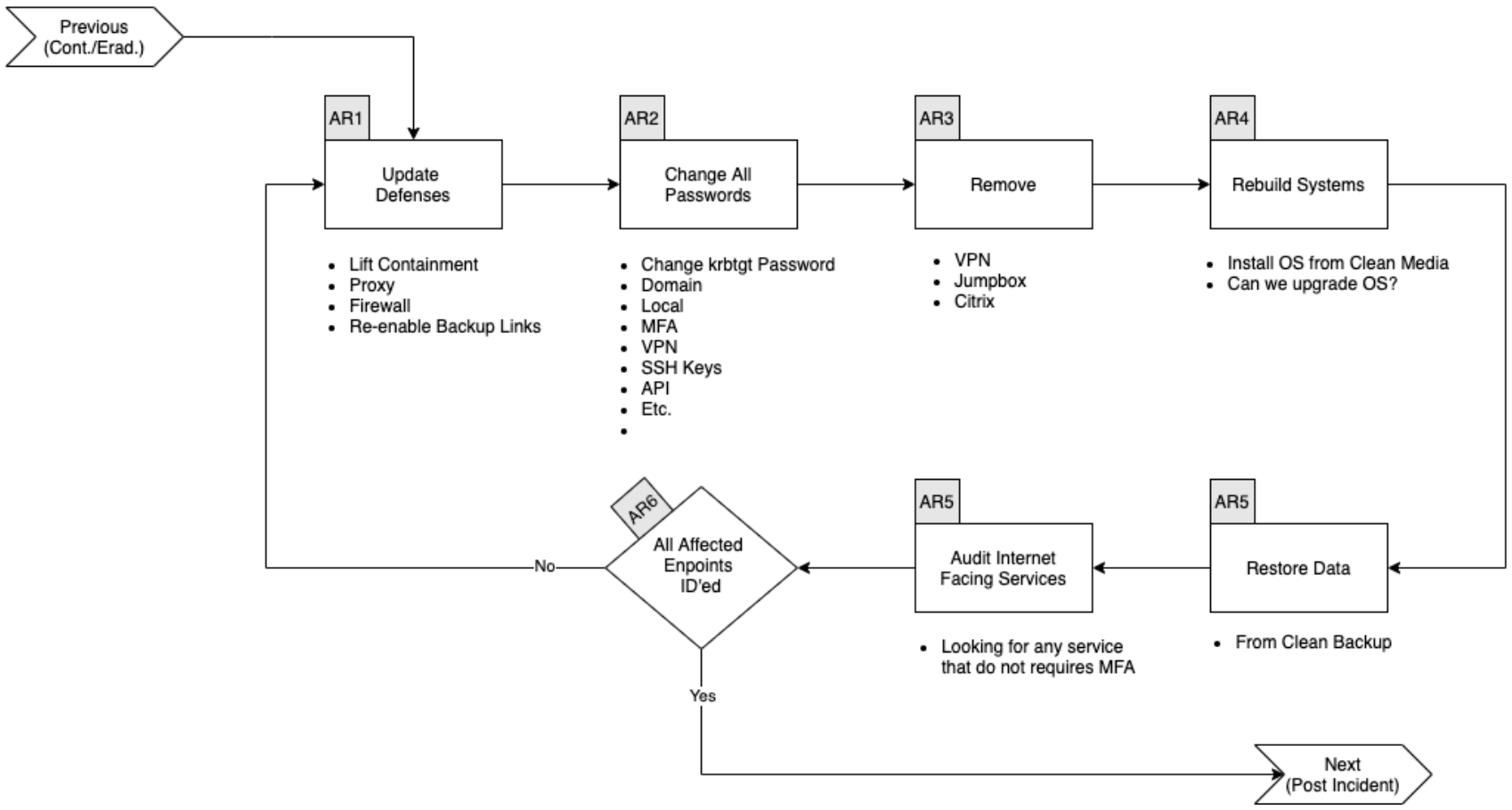
5. Recover

▼ Expand/Colapse

Workflow

▼ Expand/Colapse

Account Compromised - Recover



Update Defenses

▼ Expand/Colapse
Determine which of the following rules needs to be removed and which needs to stay in the following list:

- Firewall Rules
- EDR
  - ban hashes
  - ban domains
  - Containment
- Proxy Block

All Affected Endpoints Recovered?

▼ Expand/Colapse
If all affected endpoints have been contained, you can go to the next phase, otherwise continue bellow.

Validate Countermeasures

▼ Expand/Colapse
Determine if legitimate elements are blocked by:

- Proxy
- Firewall
- EDR

If so, go back to Update Defenses Otherwise go to the next phase

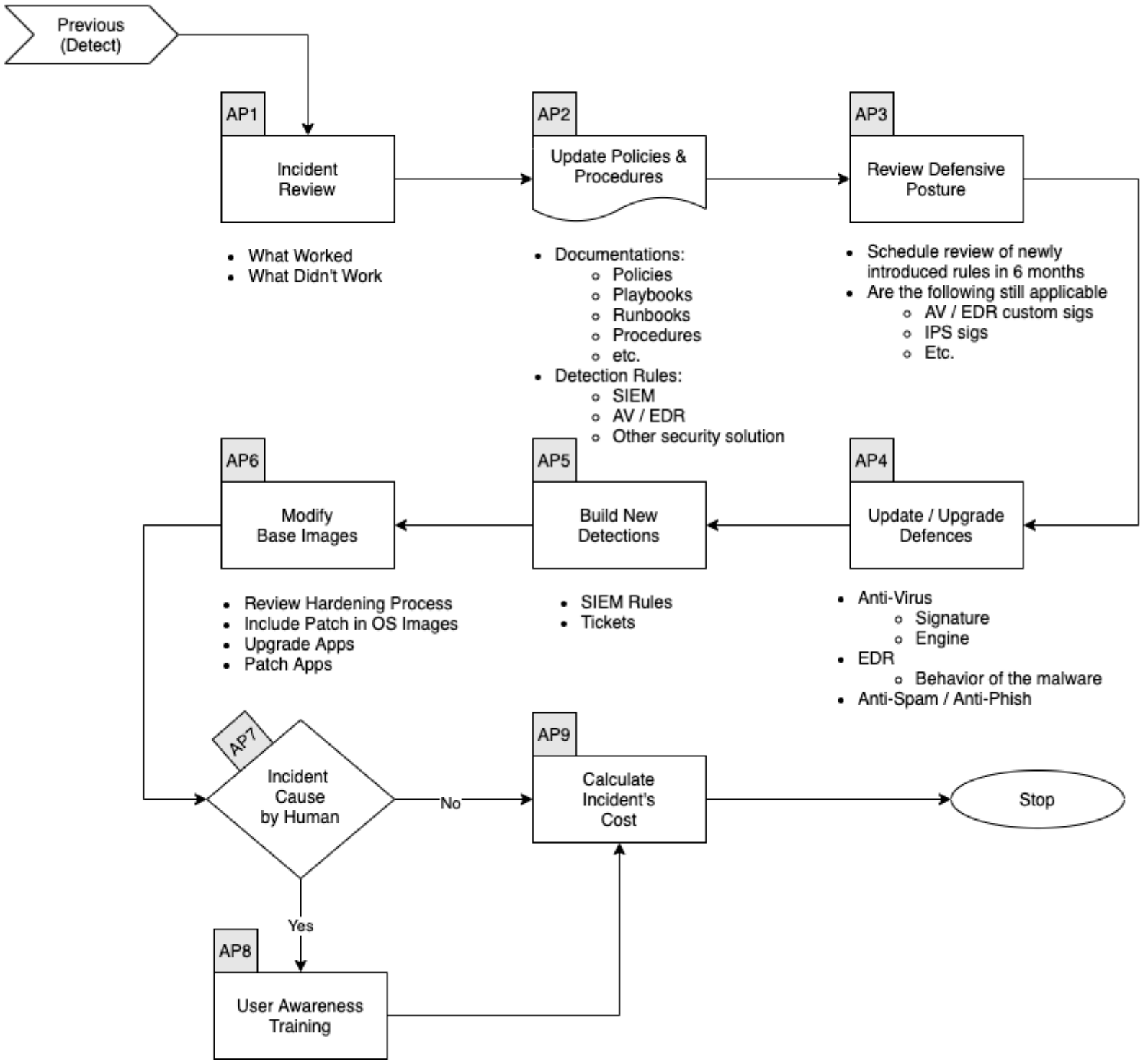
6. Post Incident

▼ Expand/Colapse

Workflow

▼ Expand/Colapse

AccountCompromised - Post Incident



Incident Review

▼ Expand/Colapse

- What worked
- What didn't work

Update Mode of Operations

▼ Expand/Colapse

Update the following documents as requiered:

- Policies
- Processes
- Procedures
- Playbooks
- Runbooks

Update Detetion Rules in:

- SIEM
- Anti-Spam
- Malware Gataway
- EDR
- Other security solution

Review Defensive Posture

▼ Expand/Colapse

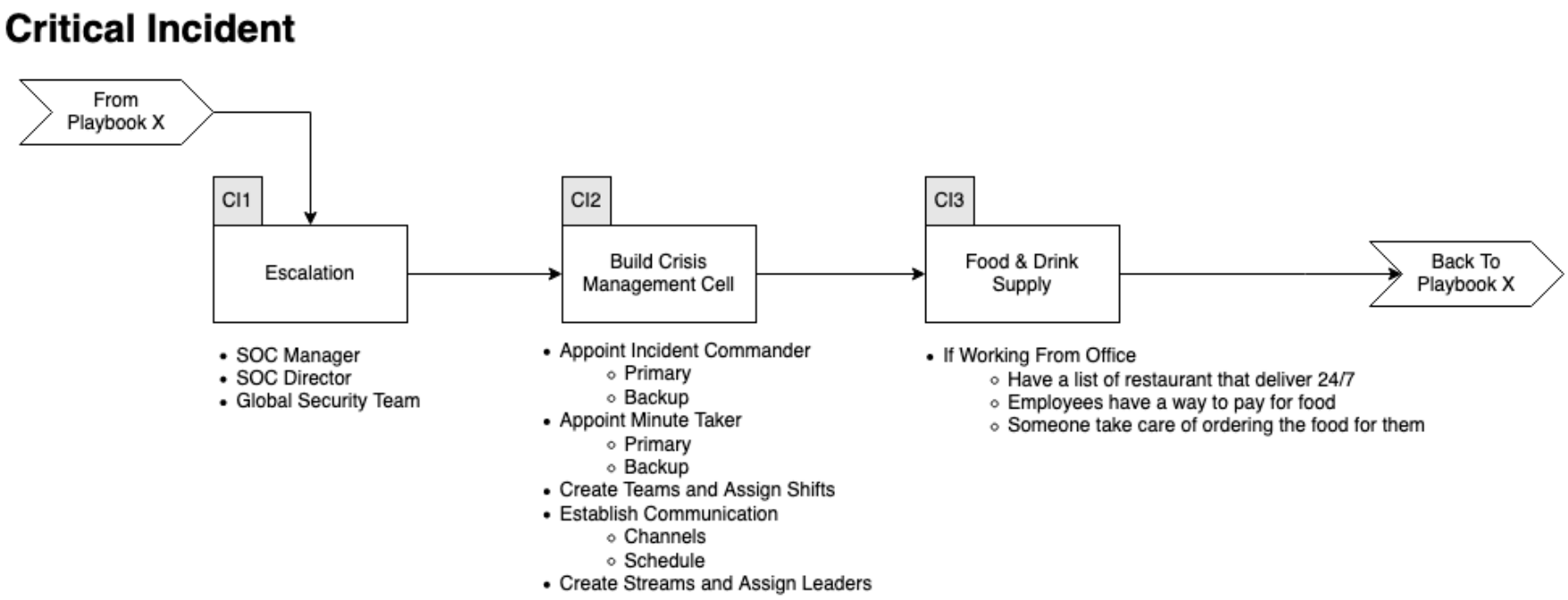
- Schedule review of newly introduced rules in6 months
- Are the following still applicatble
  - Firewall Rules
  - Proxy Rules for C2
  - AV / EDR custom Signatures
  - IPS Signatures

Critical Incident Playbook

Here are the steps to take when an incident is deemed critical.
The fact that the incident is critical doesn't mean the Playbook can/should be ignored. It just means that every steps needs to occur faster, that more people will be working on the incident and that an Incident Commander will be appointed.

Workflow

▼ Expand/Colapse



CI1 - Build a Crisis Management Cell

▼ Expand/Colapse
The SOC Manager and Director will

- Appoint an Incident Commander and a backup
  - Responsable to call the shots
  - Ensuring the Playbooks are followed
    - No steps are forgotten
    - Steps are taken in the right order
      - This doesn't mean many steps cannot be taken simultaniously
    - Chain of Custody is maintain

        - There's always someone taking notes
        - Key person to gather all information
        - Can autorize actions
            - Disconnect MPLS
            - Shutdown services/computer
        - Can autorize spending
            - Equipement
            - VM
                - GCP
                - AWS
                - Digital Ocean
            - Software
- Appoint an "minute taker" and a backup
- Create
    - Alpha Team
    - Beta Team
    - Charlie Team
- Establish communication schedule
    - Stream Report
    - C Level communication
    - etc.

The goal of these teams is to

- Have people around the clock working on the incident
- Allow people to rest
- Have period of time for pass over
    - At least 1 hour (2 prefered)
    - Both Teams are working togther
    - All updates are given

Each of the teams need to

- Have Stream Leads
    - Log review Stream
        - Depth and Breath of the attack
    - Vulnerability Assement
        - To try and identify root cause
        - See if any other systems have the same Vulnerability
    - Forensics Stream
        - Understand what happend on the host(s)
        - Malware analysis
        - Identify IOC
        - Feed the Log Stream
    - Host Stream
        - Deploy security solution
        - Update security solution
        - Build new server
        - Install apps
        - Restore data
        - etc.
    - Dark Web / Social Media monitoring Stream (optional)
        - Is there any chatter about the breach
        - Is the data for sale
        - Is the data posted somewhere

CI2 - Food & Drink Supply

If working from the office we need to know how we will feed our staff.
Someone will need to have a list of restaurants that deliver 24/7 to our locations.
We don't want our team to eat fried chicken or pizza 3 times a day.

CI3 - Define Communication Schedule

During a critical incident information sharing is critical.
We need to ensure everyone knows where and when to report information.

Define the following

- Who will attend each calls
- What platform will be used to communicate
- Technical call to sync information between the Streams
- C-Level information call
- Customers information call

CI4 - Return to the Playbook

Once the roles and teams have been formed, send the team that will take over away so they can rest and be ready to take over. Finally return to the original(s) Playbook(s)

Good luck!

Data Loss Playbook

Scope

This Playbook covers the steps to take in case of Data Loss / Data Breach.

1. Preparation

▼ Expand/Colapse

- Create and maintain a list of
    - all domains owned by Company.
        - This can prevent you from taking actions against our own domains
    - all people of can register domains
- Create email template
    - to notify all employees of ongoing phishing campaing against the organization
    - to contact hosting companies for domain take down
    - to inform 3rd party to take actions against phishing on there infra (Microsoft, Fedex, Apple, etc.)
- Ensure that:
    - Mail anti-malware/anti-spam/anti-phish solutions are in place.
    - Users know how to report phish
    - Detection exists for office documents spawning processes
        - PowerShell
        - CMD
        - WMI
        - MSHTA
        - Etc.
- Perform Firedrill to ensure all aspects of the Playbook are working
    - After publication
    - At least once a year
    - Test/Validate:
        - Customer's Cards
        - Internal Contact and Escalation Paths
- Review threat intelligence for
    - threats to the organisation,
    - brands and the sector,
    - common patterns
    - newly developing risks and vulnerabilities
- Ensure appropriate access to any necessary documentation and information, including out-of-hours access, for the following
    - IR Playbgns to highlight information security risks faced by employees, including:
    - Phishing attacks and malicious emails;
    - Ransomware;
    - Reporting a suspected cyber incident.

Tool Access and Provisioning

Tool1

Please referer to Tool1 Documentation

Tool2

Please referer to Tool2 Documentation

Assets List

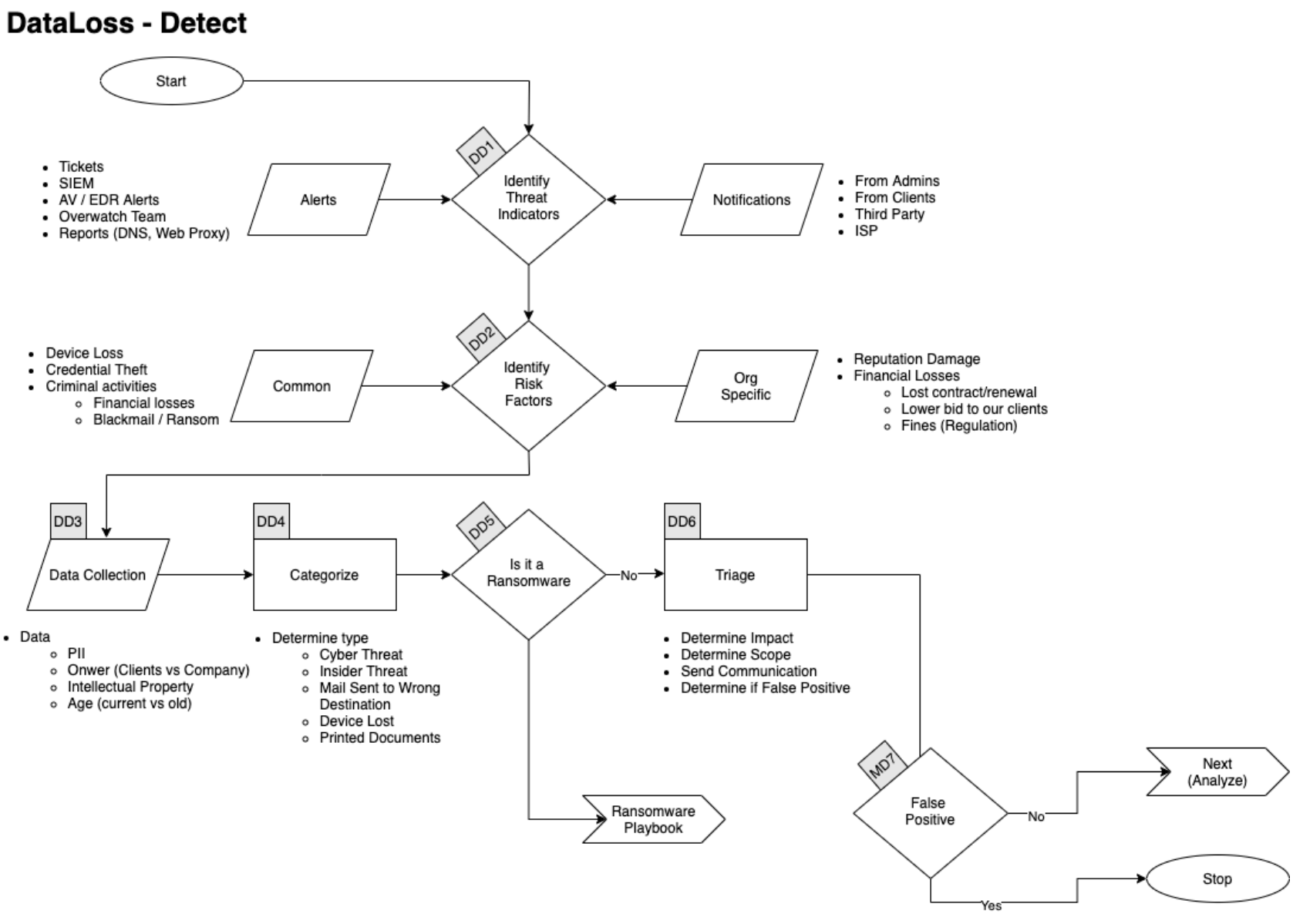
- A list of assets and owner should exists and be available for the following
  - Customers Assets
    - Owners
    - Contacts
    - Pre authorized actions
  - Company Assets (Including all filiale and business units)
    - Owners
    - Contacts
    - Administrators
    - Pre autorized actions
- Type of assets inventory needed
  - Endpoints
  - Servers
  - Network Equipements
  - Security Appliances
  - Network Ranges
    - Public
    - Private
    - VPN / Out of Band
    - Employees
    - Partners
    - Clients

2. Detect

▼ Expand/Colapse

Workflow

▼ Expand/Colapse



DD1. Identify Threat Indicators

▼ Expand/Colapse

Alerts

Alerts are be generated by differents systems owned by the Security/SOC team. The main sources for alerts are

- Tickets
- SIEM
- Anti-Virus / EDR
- Reports
  - DNS
  - Web Proxy

Notifications

Notifications are comming from external sources usually via email, Teams or phone. The main sources for notifications are

- System Administrators
- Clients
- Third Parties
- ISP

DD2. Indentify Risks Factors

▼ Expand/Colapse

Common

- Credential Theft
- Device Loss
  - Laptop
  - Phone
- Criminal Activites
  - Blackmail / Ransom

Company Specific

- Reputation Damage
- Financial Losses
  - Lost of conctrat
  - Contract not renewed
  - Lower bid to our clients
  - Fines
    - Regulation

DD3. Data Colletion

This section describe the information that should be collected and documented about the incident
There is a lot of ressources to help you with that phase here

▼ Expand/Colapse
Type Data

- Personally identifiable information (PII)
- Intellectual Property
- Age of the Data
  - Current
  - Old
- Owner of the Data
  - Company
  - Clients

DD4. Categorize

▼ Expand/Colapse
Determine type of Data Loss we are dealing with.

- Cyber Threat
- Insider Threat
- Mail Sent to Wrong Destination
- Device Lost
  - Laptop
  - Phone
- Printed Documents

DD5. Is it Ransomware ?

If the Data Loss is caused by a Ransomware please refere to the Ransomware Playbook

DD6. Triage

▼ Expand/Colapse

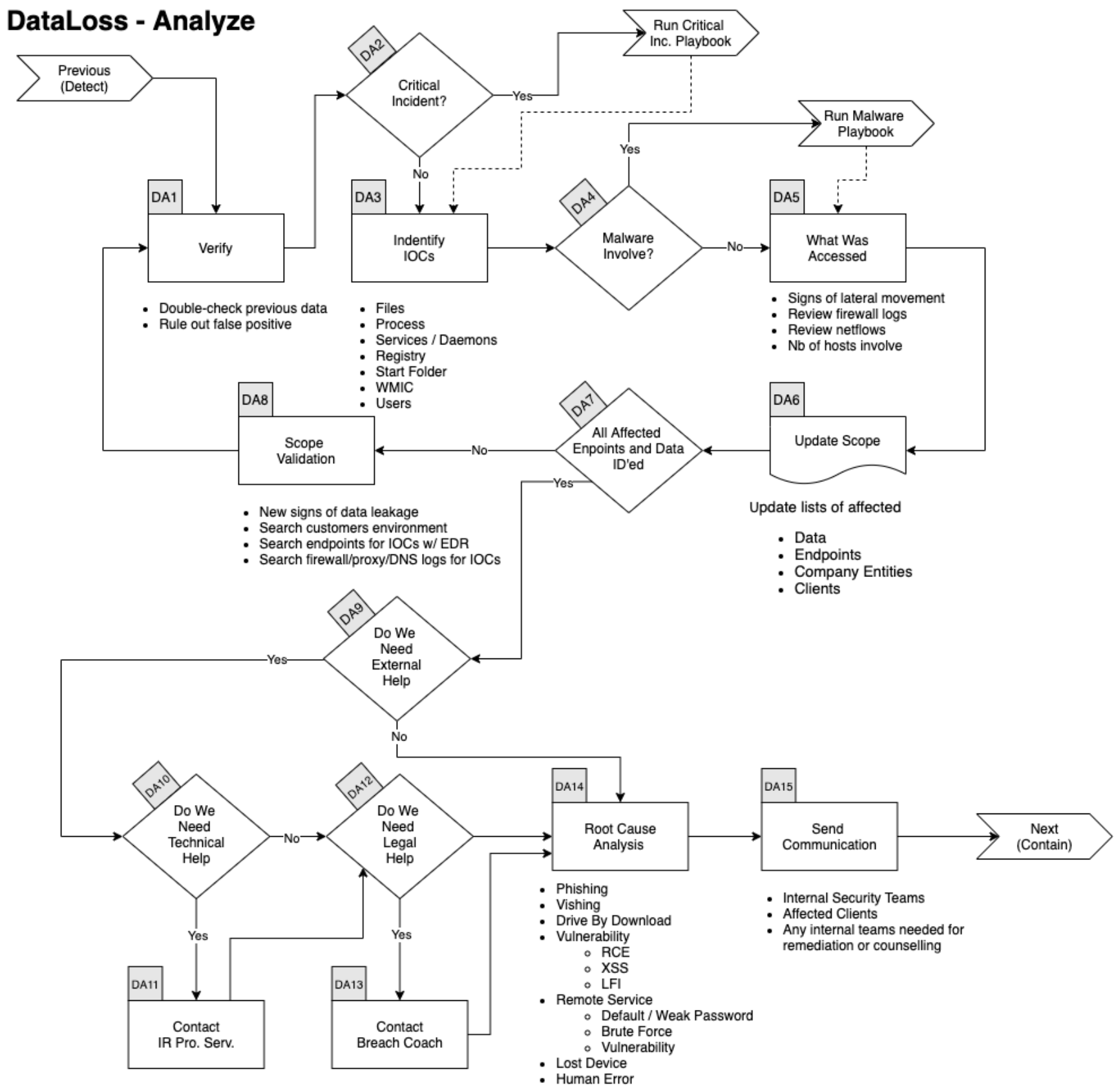
- Determine Impact
- Determine Scope
  - Number of Documents / Records
  - Number of Clients
  - Number of Company Entities
  - Number of Individuals
- Send Communincation
- Determine if False Positive

3. Analyze

▼ Expand/Colapse

Workflow

▼ Expand/Colapse



DA1. Verify

▼ Expand/Colapse
In conjonction with a senior member of the SOC

- Double check previous data
- Rule Out False Positive

DA2. Critical Incident

If this incident is deemed **Major or Critical** by the senior analyst go to the Critical Incident Playbook

DA3. Identify IOCs

▼ Expand/Colapse

- Data
  - All Files Lost
  - Records Stolen
  - MFA Token
  - Credentials
  - PII
- Validate hashes
  - VirusTotal
  - Hybrid Analysis
- Validate links
  - VirusTotal
  - Hybrid Analysis
  - URLScan
- ID other addresses, domains, IPs
  - VirusTotal
  - Hybrid Analysis
  - Talos Intelligence
- Search Threat Intel sources
  - VirusTotal
  - Hybrid Analysis
  - Talos Intelligence
- Disk forensics on recipient's endpoint

DA4. Malware

If **Malware** was involve in the incident refer to the Malware Playbook

DA5. What Was Accessed

▼ Expand/Colapse
Did the attack touched other systems?
Look for:

- Signs of Lateral Movement
- Review Firewall Logs
- Review Netflows
- Assess the Number of Hosts Involved
- Number of Clients Affected
  - Perform the same research for all affected clients

DA6. Update Scope

▼ Expand/Colapse

- Update lists of affeected
  - Data
  - Endpoints
  - Company Entities
  - Clients

DA8. Scope Validation

▼ Expand/Colapse
Have all the machines and data been identified? If you find futher traces of phishing or new IOCs go back to Verify Step.

When you are done identifying all :

- Data that was Lost
- Affected Endpoints
- Affected Company Entities
- Affected Customers

And if applicable investigated all:

- URLs
- Domains
- IP
- Ports
- Files
- Hash

You can proceed with the next steps.

DA9. External Help

Does Company have all the knowledge and ressources to handle the crisis alone?

DA11. Technical Help

If the Incident Commander feels we need Technical help or ressources to handle the incident he can reach out to our Incident Response Partner.
We have a retainer with the following company and we can reach them at : xxxx@yyy.com or 555-555-5555

DA12. Legal Help

If there are Legal implication such as

- GDPR
- Criminal Charges
- Regulation
- Laws

DA14. Root Cause Analysis

▼ Expand/Colapse
Identify how this incident happened.

- Phishing Emails
- Voice Phishing
- Drive-by Download
- Vulnerability
  - Remote Code Execution
  - Cross-Site Scripting
- Remote Services
  - Default / Weak Password
  - Brute Force
  - Vulnerability
- Lost Device
- Human Error

DA15. Send Communincation

▼ Expand/Colapse
Contact any relevant of the following party

- Internal Security Team
- Affected Clients
- Any internal teams needed for remediation or counselling

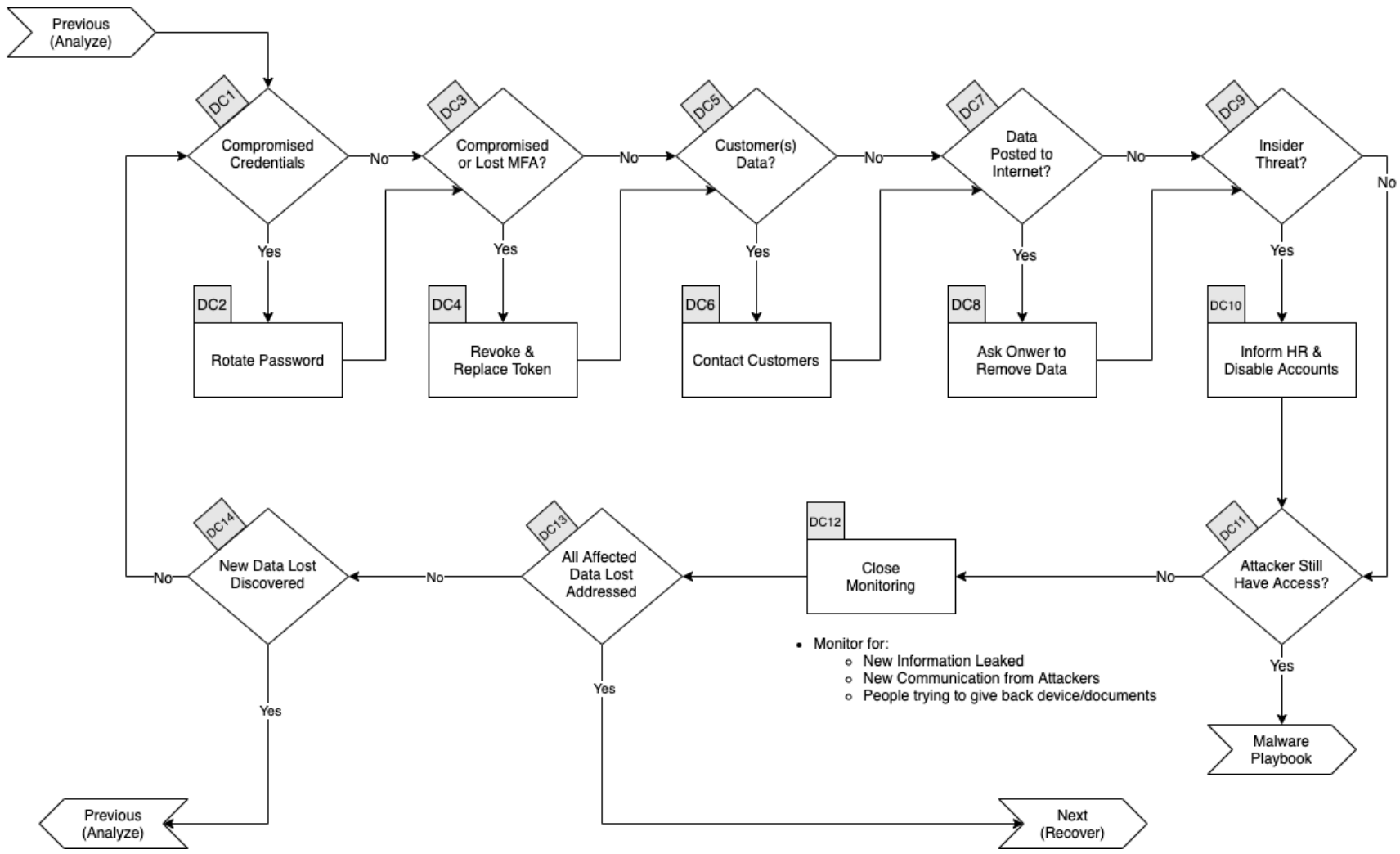
4. Contain / Eradicate

▼ Expand/Colapse

Workflow

▼ Expand/Colapse

DataLoss - Contain / Eradicate



DC1. Compromised Credentials

▼ Expand/Colapse
If any credentials are suspected to have been accessed, stolen or used they will all need to be changed.
This applies to:

- Local Passwords
- Network Passwords
- Remote Passwords
- Etc.

DC3. Compromised or Lost MFA

▼ Expand/Colapse
If any Multi Factor Authentication token/code were accessed, stolen or used they will all need to be

- Revoke
- Replace.

DC5. Customer Data

▼ Expand/Colapse
If any if customer data was accessed or leaked we will need to send communication to all affected clients using the approved Customer Communication Template.

DC7. Data Posted to the Internet

▼ Expand/Colapse
If the site is controlled by an public company, we can ask them to remove the information. Usually writing at abuse@company.com is a good place to start.

DC9. Insider Threat

▼ Expand/Colapse
If the information was intentionally leaked/sold by an employee, we need to:

- Contact HR
- Disable User Account
- Disable any MFA token

We will potentially need to send physical security to the employee's desk to seize his/her laptop and other devices.

DC11. Attacker Still Have Access?

If there is any sign of the attacker still being in the network, go to the Malware Playbook

DC12. Close Monitoring

▼ Expand/Colapse

- Monitor for
  - New information leaked
  - New communication from Attackers
  - People trying to give back device(s)/document(s)

DC13. All Affected Data Lost Addressed?

▼ Expand/Colapse
If all affected data have been addressed, you can go to the Recover phase, otherwise continue bellow.

DC14. New Data Lost Discovered?

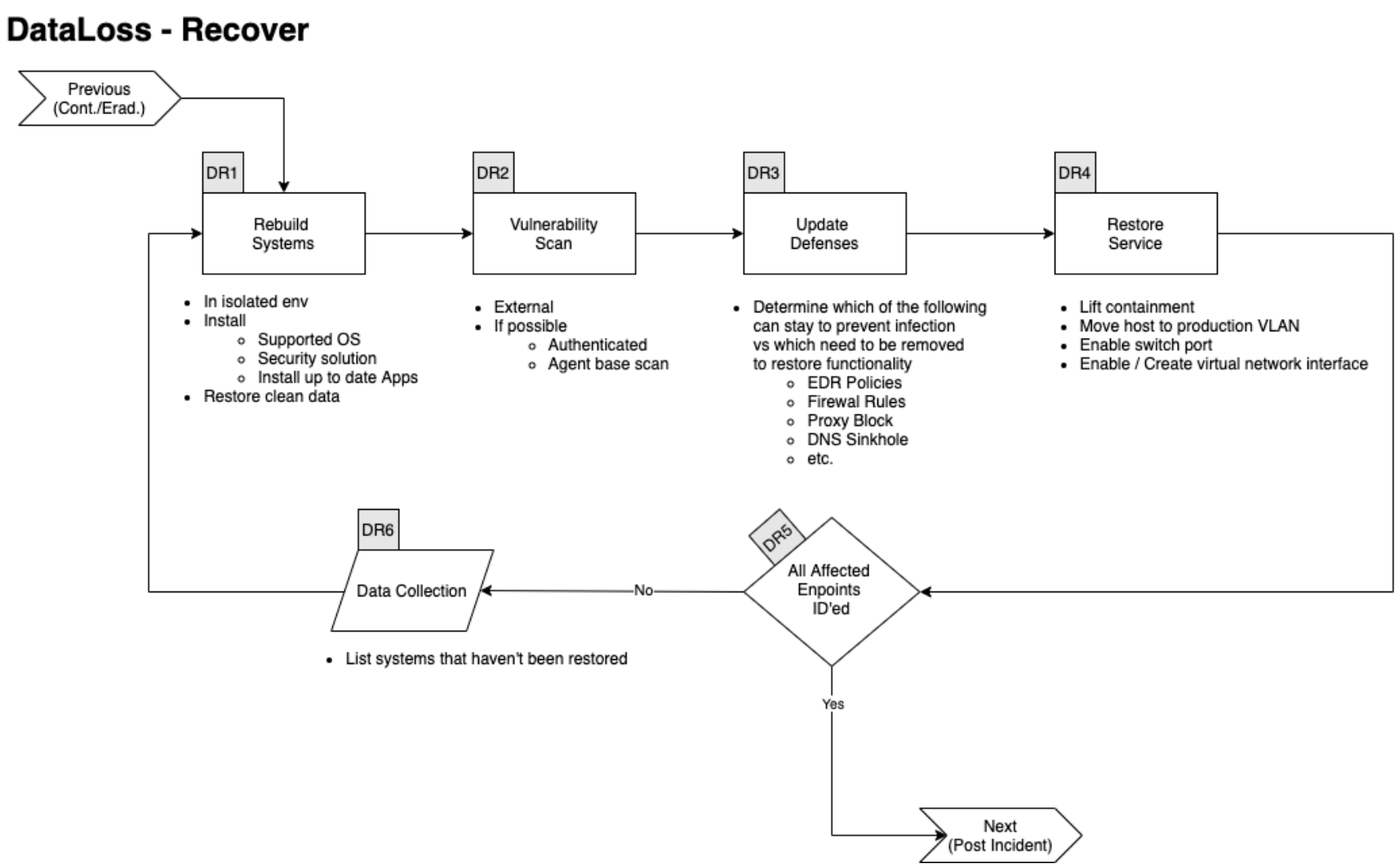
▼ Expand/Colapse
If there was new leaked data/devices discovered, go back to the Analyze Phase

5. Recover

▼ Expand/Colapse

Workflow

▼ Expand/Colapse



DR1. Rebuilt Systems

▼ Expand/Colapse
In an isolated environment:
- Install - Supported OS - Security solutions - Up to date applications - Restore data (from a clean backup)

DR2. Vulnerability Scan

▼ Expand/Colapse
Perform:

- External VA
- If possible
  - Authenticated scan
  - Agent base scan

DR3. Update Defenses

▼ Expand/Colapse
Determine which of the following rules needs to be removed and which needs to stay in the following list:

- Firewall Rules

- EDR
  - Ban hashes
  - Ban domains
  - Containment
- Proxy Block
- DNS Sinkhole
- Etc.

DR4. Restore Service

▼ Expand/Colapse
Depending on the containment applied to the host, perform all the following that applies:

- Lift containment in EDR console
- Move host to production VLAN
- Enable switch port
- Enable/Create virtual network interface
- etc.

DR5. All Affected Endpoints Restored?

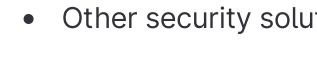
▼ Expand/Colapse
If all affected endpoints have been restored, you can go to the Post Incident phase, otherwise continue bellow.

- List systems that haven't been restored
- Go to [README.md#rebuild-systems]

6. Post Incident

▼ Expand/Colapse

Workflow

▼ Expand/Colapse

Data Loss Workflow

DP1. Incident Review

▼ Expand/Colapse
- What worked
- What didn't work

DP2. Update Mode of Operations

▼ Expand/Colapse
Update the following documents as requiered:

- Policies
- Processes
- Procedures
- Playbooks
- Runbooks

Update Detetion Rules in:

- SIEM
- Anti-Spam
- Malware Gataway
- EDR
- Other security solution

DP3. Review Defensive Posture

▼ Expand/Colapse
- Schedule review of newly introduced rules in6 months
- Are the following still applicatble
  - Firewall Rules
  - Proxy Rules for C2
  - AV / EDR custom Signatures
  - IPS Signatures

DP4. Build New Detection

▼ Expand/Colapse
If the Data Loss was not caused by a lost device, we need to build new detections

- Mail Service
- Anti-Spam / Anti-Phish
- ATT&CK Techniques
- etc.

DP5. Modifify Base Images

▼ Expand/Colapse
If the Data Loss was caused by a lack of hardening or sufficient patch level:

- Review hardening processes
- Include critical patches in base Images
- etc.

DP7. User Awareness Training

▼ Expand/Colapse
If the incident was caused by a human error

- Create / Select new mandatory training
  - Cyber Education Vendor
  - From Youtube videos
  - Built by internal teams

DP8. Calculate Incident's Cost

▼ Expand/Colapse
Calculate the incident's Cost

- Time Spent
- Ransom paid
- Downtime
- Fines / Penalities
- etc.

Malware Playbook

Scope

This Playbook covers

1. Preparation

▼ Expand/Colapse

- Create and maintain a list of
    - all domains owned by Company.
        - This can prevent you from taking actions against our own domains
    - all people of can register domains
- Create email template
    - to notify all employees of ongoing phishing campaing against the organization
    - to contact hosting companies for domain take down
    - to inform 3rd party to take actions against phishing on there infra (Microsoft, Fedex, Apple, etc.)
- Ensure that:
    - Mail anti-malware/anti-spam/anti-phish solutions are in place.
    - Users know how to report phish
    - Detection exists for office documents spawning processes
        - PowerShell
        - CMD
        - WMI
        - MSHTA
        - Etc.
- Perform Firedrill to ensure all aspects of the Playbook are working
    - After publication
    - At least once a year
    - Test/Validate:
        - Customer's Cards
        - Internal Contact and Escalation Paths
- Review threat intelligence for
    - threats to the organisation,
    - brands and the sector,
    - common patterns
    - newly developing risks and vulnerabilities
- Ensure appropriate access to any necessary documentation and information, including out-of-hours access, for the following
    - IR Playbgns to highlight information security risks faced by employees, including:
    - Phishing attacks and malicious emails;
    - Ransomware;
    - Reporting a suspected cyber incident.

Tool Access and Provisioning

Tool1

Please referer to Tool1 Documentation

Tool2

Please referer to Tool2 Documentation

Assets List

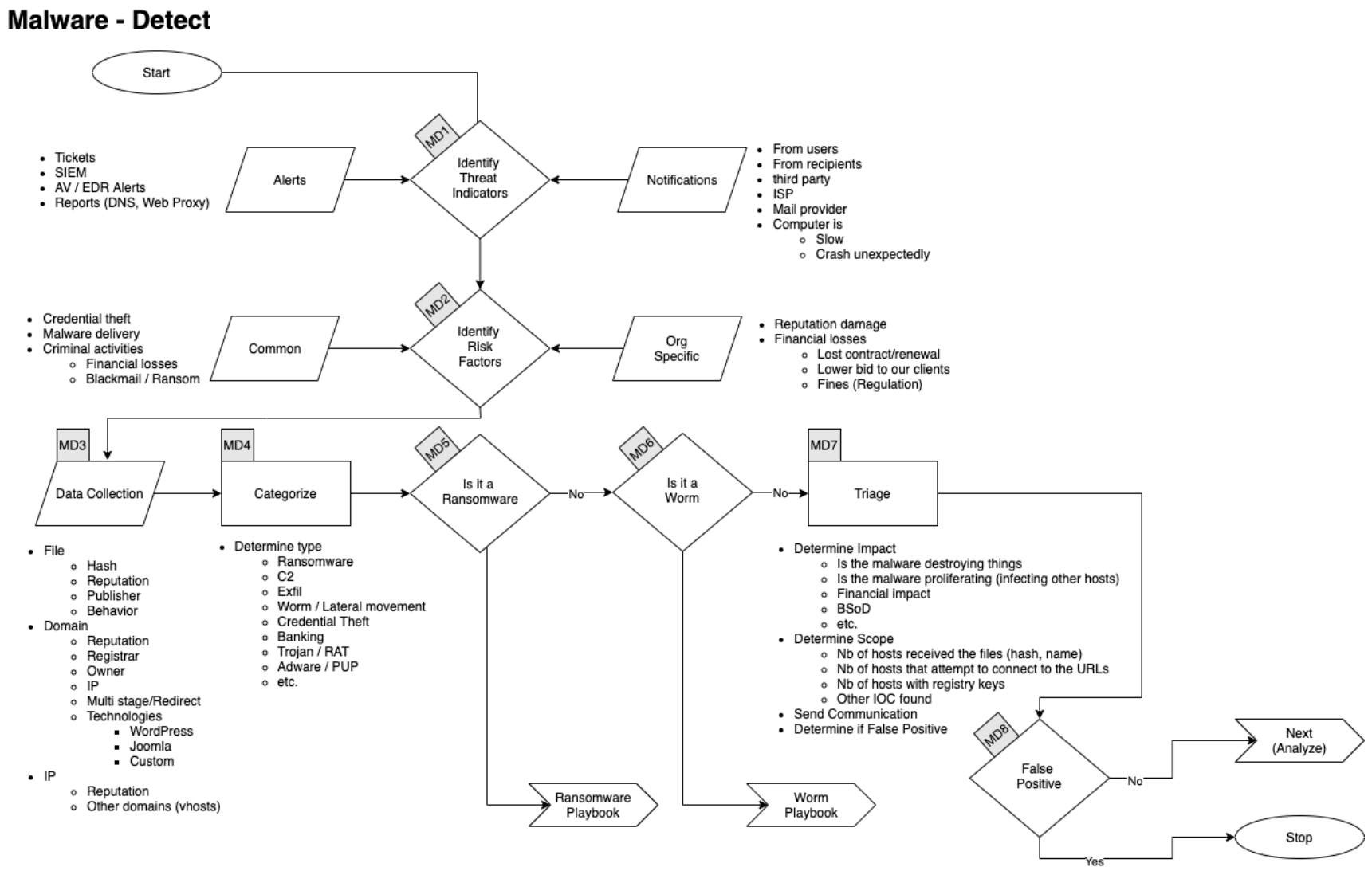
- A list of assets and owner should exists and be available for the following
  - Customers Assets
    - Owners
    - Contacts
    - Pre authorized actions
  - Company Assets (Including all filiale like and business units)
    - Owners
    - Contacts
    - Administrators
    - Pre autorized actions
- Type of assets inventory needed
  - Endpoints
  - Servers
  - Network Equipements
  - Security Appliances
  - Network Ranges
    - Public
    - Private
    - VPN / Out of Band
      - Employees
      - Partners
      - Clients

2. Detect

▼ Expand/Colapse

Workflow

▼ Expand/Colapse



MD1. Identify Threat Indicators

▼ Expand/Colapse

Alerts

Alerts are be generated by differents systems owned by the Security/SOC team. The main sources for alerts are

- Tickets
- SIEM
- Anti-Virus / EDR
- Reports
  - DNS
  - Web Proxy
- Errors from mail servers

Notifications

Notifications are comming from external sources usually via email, Teams or phone. The main sources for notifications are

- Users (internal)
- Recipents of emails (external)
- Third Parties
- ISP
- Mail Providers
- Computer is
  - Slow
  - Crash unexpectedly

MD2. Indentify Risks Factors

▼ Expand/Colapse

Common

- Credential Theft
- Malware Delivery
- Criminal Activites
  - Blackmail / Ransom

Company Specific

- Reputation damage
- Financial Losses
  - Lost of conctrat
  - Contract not renewed
  - Lower bid to our clients
  - Fines
    - Regulation

MD3. Data Collection

This section describe the information that should be collected and documented about the incident
There is a lot of ressources to help you with that phase here

▼ Expand/Colapse
Files

- Hash
- Reputation
- Publisher
- Behavior

Domains

- Reputation
- Registrar
- Owner
- IP
- Multistage / Redirect
- Technologies of the site
  - WordPress
  - Joomla

    - Custom Page (credential phish)

IP

- Reputation
- Owner
- Geo Localisation
- Other domains on that IP

MD4. Categorize

▼ Expand/Colapse
Determine type of malware

- Ransomware
- C2
- Exfiltration
- Worm / Lateral Movement
- Credential Theft
- Banking
- Trojan / RAT
- Adware / PUP
- etc.

MD5. Is it a Ransomware ?

As time is VERY sensitive in the case of a Ransomware:

- Send a communication to the Security Mailing List
- Ping everyone in the Security Teams Chat
- Go to the Ransomware Playbook
    - If the Playbook doesn't exist, follow this one

MD6. Is it a Worm ?

As time is sensitive in the case of a Worm:

- Send a communication to the Security Mailing List
- Ping everyone in the Security Teams Chat
- Go to the Worm Playbook
    - If the Playbook doesn't exist, follow this one

MD7. Triage

▼ Expand/Colapse
Determine

- Impact
    - Of the malware destroying things
    - Is the malware proliferating (infecting other hosts)
    - Financial
    - Blue Screen of Death (or other crash)
    - Data loss
    - etc.
- Scope: Number and list of hosts that
    - Have the files
        - Hash
        - File name
        - RegEx match (ie: INVOICE-12345.docx where `12345` is 5 random digit)
    - Attempted to connect to the
        - URLs
        - IP
        - Ports
    - That have the registry keys
    - Any other IOCs found

MD8. Is it a False Positive?

If it's a False Positive:

- Document and close the incident

If it's a True Positive:

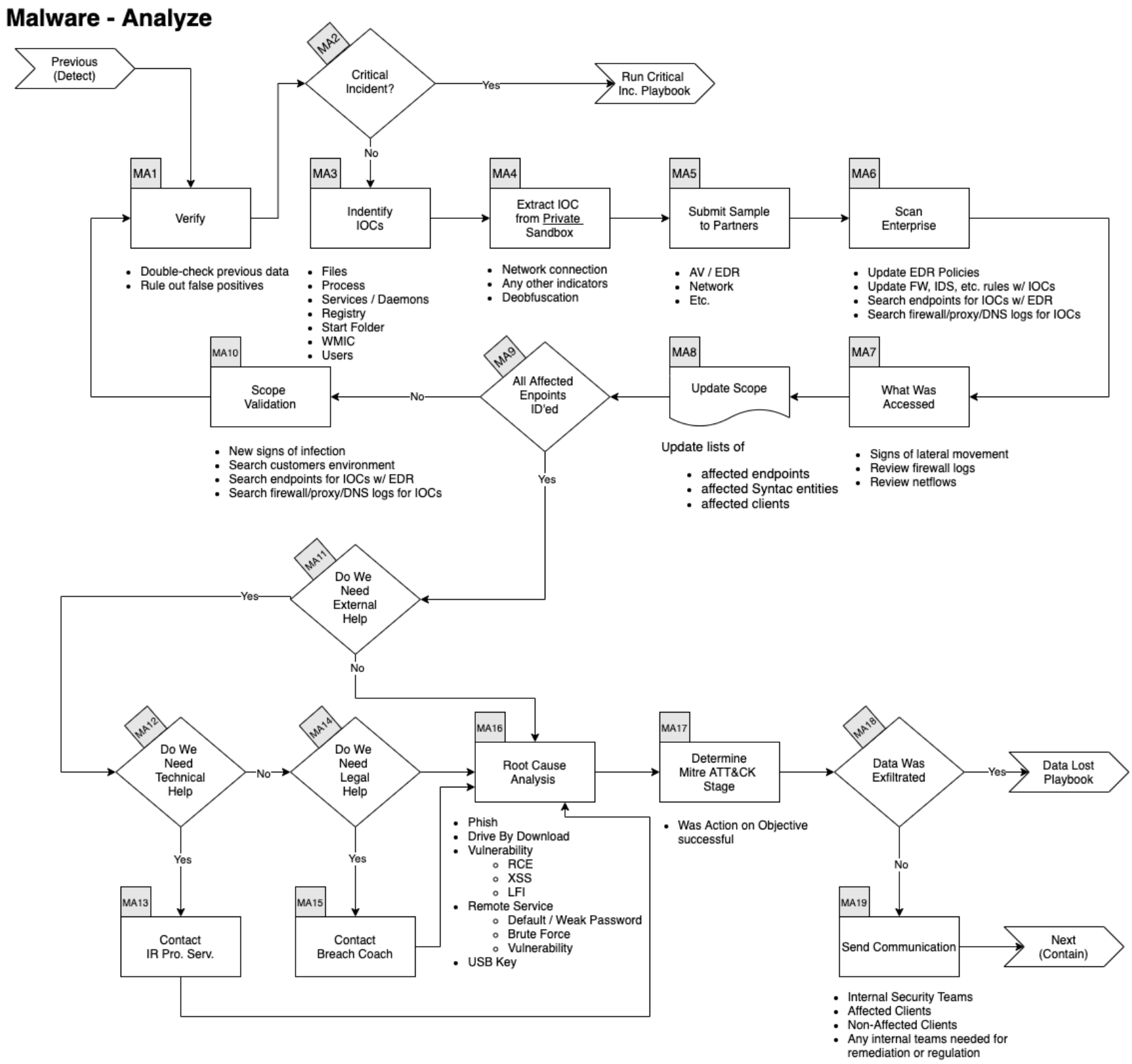
- Send communication to
  - Security Team
  - Admin Teams
  - Affected Syntac Entities
  - Affected Clients
- Go to Analyze phase

3. Analyze

▼ Expand/Colapse

Workflow

▼ Expand/Colapse



MA1. Verify

▼ Expand/Colapse
In conjonction with a senior member of the SOC

- Double check previous data
- Rule out False Positive

MA2. Is this a Major/Critical Incident?

If this incident is deemed **Major or Critical** by the senior analyst go to the Critical Incident Playbook

MA3. Identify IOCs

▼ Expand/Colapse

Don't forget to look at **ALL** the tabs of the tools. Not just detection rate.
For example, the tabs `Details` and `Behavior` of VirusTotal are very informative about who published the file and what the file did to the system.

- Validate file hashes
  - VirusTotal
  - Hybrid Analysis
- Validate links
  - VirusTotal
  - Hybrid Analysis
  - URLScan
- ID other addresses, domains, IPs
  - VirusTotal
  - Hybrid Analysis
  - Talos Intelligence
  - Domain Dossier
- Search Threat Intel sources
  - VirusTotal
  - Hybrid Analysis
  - Talos Intelligence
- Disk forensics on endpoint (if requiered)

MA4. Extract IOCs

▼ Expand/Colapse
Using a *PRIVATE* sandbox run the malware sample (files) and try to access the URLs
Collect the following informations:

- Network connections
- Registries modifications
- Files
  - droped
  - accessed
  - modified
- Deobfuscated script
  - From Script Block (for PowerShell)
- New services
  - Created
  - Launched
- New scheduled tasks
- New WMI provider(s)

MA5. Submit Samples to Partners

▼ Expand/Colapse
If the malware(s) was not detected/blocked by the security stack

- Submit Samples to Security Vendor
- Submit URLs, IP, Domains

MA6. Scan Enterprise

▼ Expand/Colapse
- Update AV / EDR
  - Engine
  - Ruleset
  - Policies
- Update FW, IDS, etc. rules with IOCs
- Search endpoints for IOCs with EDR
- Search SIEM for IOCs
- Search Firewall, Proxy, DNS logs for IOCs

MA7. What Was Access

▼ Expand/Colapse
- Look for signs of lateral Movement
- Review firewall logs
  - Network appliances (ie: Cisco ASA)
  - endpoint (ie: Windows local firewall, EDR, AV, etc.)
- Review netflows

MA8. Update Scope

▼ Expand/Colapse

- Update lists of
  - affected endpoints
  - affected Company Entities
  - affected clients

MA9. Scope Validation

▼ Expand/Colapse

Have all the machines been identified? If you find futher traces of infection or new IOCs go back to the Verify Step.

When you are done identifying all compromised:

- Hosts

And investigated all:

- URLs
- Domains
- IP
- Ports
- Files
- Hash

MA11. Do We Need External Help?

▼ Expand/Colapse

Depending on the depth and breath of the infection we might need so conseilling.
Evalatuate of we need

- Technical, Hands On, Response, etc. support
- Legal conseilling (data breach, lots of clients affected, etc.)

If it's the case, contact our partners and activate the retainer.

MA16. Root Cause Analysis

▼ Expand/Colapse

How did this infection started?

- Phish
- Drive by download
- Vulnerability
  - RCE
  - XSS
  - LFI
- Remote services
  - Default / Weak password
  - Brute Force
  - Vulnerability
- USB key/drive

MA17. Determine Mitre ATT&CK Stage

▼ Expand/Colapse

The [Mitre ATT&CK Framework]() as various [Tactics] that are part of a [Cyber Kill Chain]. It is important to know at which stage of the Kill Chain the attack was detected and stoped.

Document your ticket with the following information:

- Stage of detection
- Stage of prevention
- Was action on objective completed
  - File encrypted
  - Data exfiltrated
  - Account takeover
  - Etc.

If data was exfiltrated go to the Data Lost Playbook

MA18. Was Any Data Exfiltrated?

If we know or **suspect** that data was exfiltrated by the adversaries go to Data Loss Playbook

MA19. Send communication

▼ Expand/Colapse

- Send a update communication to
  - Security Team
  - Admin Teams
  - Affected Syntac Entities
  - Affected Clients

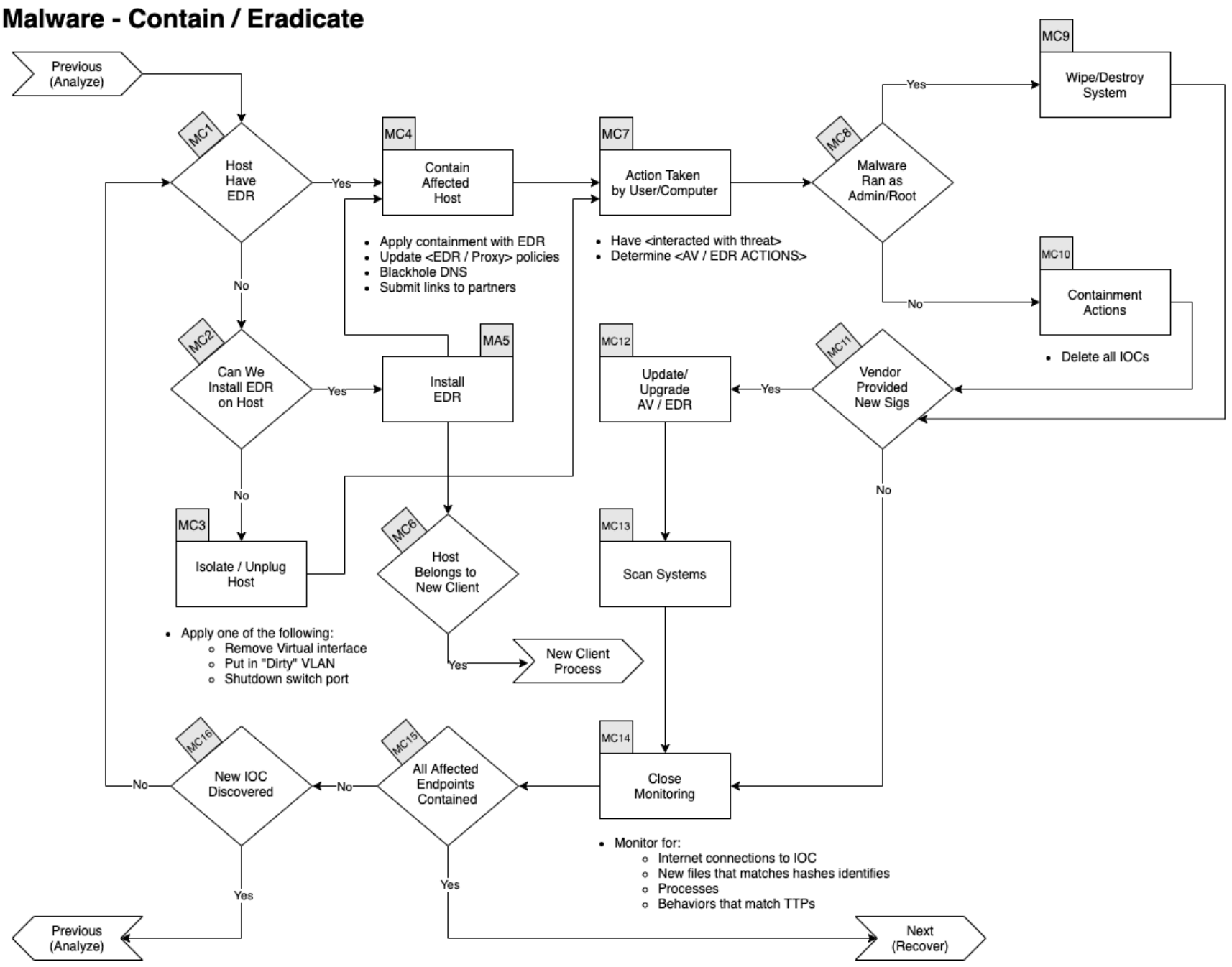
Go to the next phase <Contain/Eradicate>

4. Contain / Eradicate

▼ Expand/Colapse

Workflow

▼ Expand/Colapse



MC1. Does the host have EDR?

▼ Expand/Colapse

If the host **have** an EDR installed go to the Contain Section

If the host **does not have** an EDR, is it possible to install one?

Yes:

- Install EDR
- Go to Contain section

No: Isolate / Unplug the host

- Apply one of the following containment strategy
  - Remove/shutdown virtual interface
  - Put in "Dirty" VLAN
  - Shutdown switch port
- Go to Action Taken section

MC4. Contain Affected Hosts

▼ Expand/Colapse

- Update FW, Proxy, etc. rules
- Blackhole DNS
- Submit to Partners
  - AV/EDR Vendor
  - Web Filter Vendor
  - etc.

MC7. Action Taken by User/Computer

▼ Expand/Colapse

Did the user:

- Launch the malware
  - Open the document(s)
  - Run the executable
  - Launch the script

Did the computer / EDR:

- Connect to external site(s)
- Write files to disk
- Modified registry keys
- New services
  - Created
  - Launched
- New scheduled tasks
- New WMI provider(s)
- Block excution
- Quarantine file(s)

MC8. Admin Rights?

▼ Expand/Colapse

In order to select the right eradication strategy we need to know in which context the malware was executed.

Was the user admin/root of the machine or any other machines in the environment?

Yes:

- Wipe physical machine
- Delete virtual machine

No:

- Delete all IOCs
  - Files
  - Registry keys
  - Services
  - Scheduled Tasks
  - WMI provider(s)
  - etc.

MC11. Did Vendor Release New Signature?

▼ Expand/Colapse

Did the security vendor of the AV / EDR released a new engine, signature, policy to address the malware?

No:

- Go to Close Monitoring

Yes:

- Upgrade security solution
- Update signatures
- Activate policy
- Scan systems enterprise wide
  - Include customers if requiered

MC14. Close Monitoring

▼ Expand/Colapse

- Monitor for:
  - Internet connections to IOC
  - New files that matches hashes identified
  - Processes
  - Behaviors that matched identified TTPs

MC15. All Affected Endpoints Contained?

▼ Expand/Colapse
If all affected endpoints have been contained, you can go to the phase, otherwise continue bellow.

MC16. New IOC Discovered?

▼ Expand/Colapse
If there was new IOC discovered, go back to the Analyze Phase

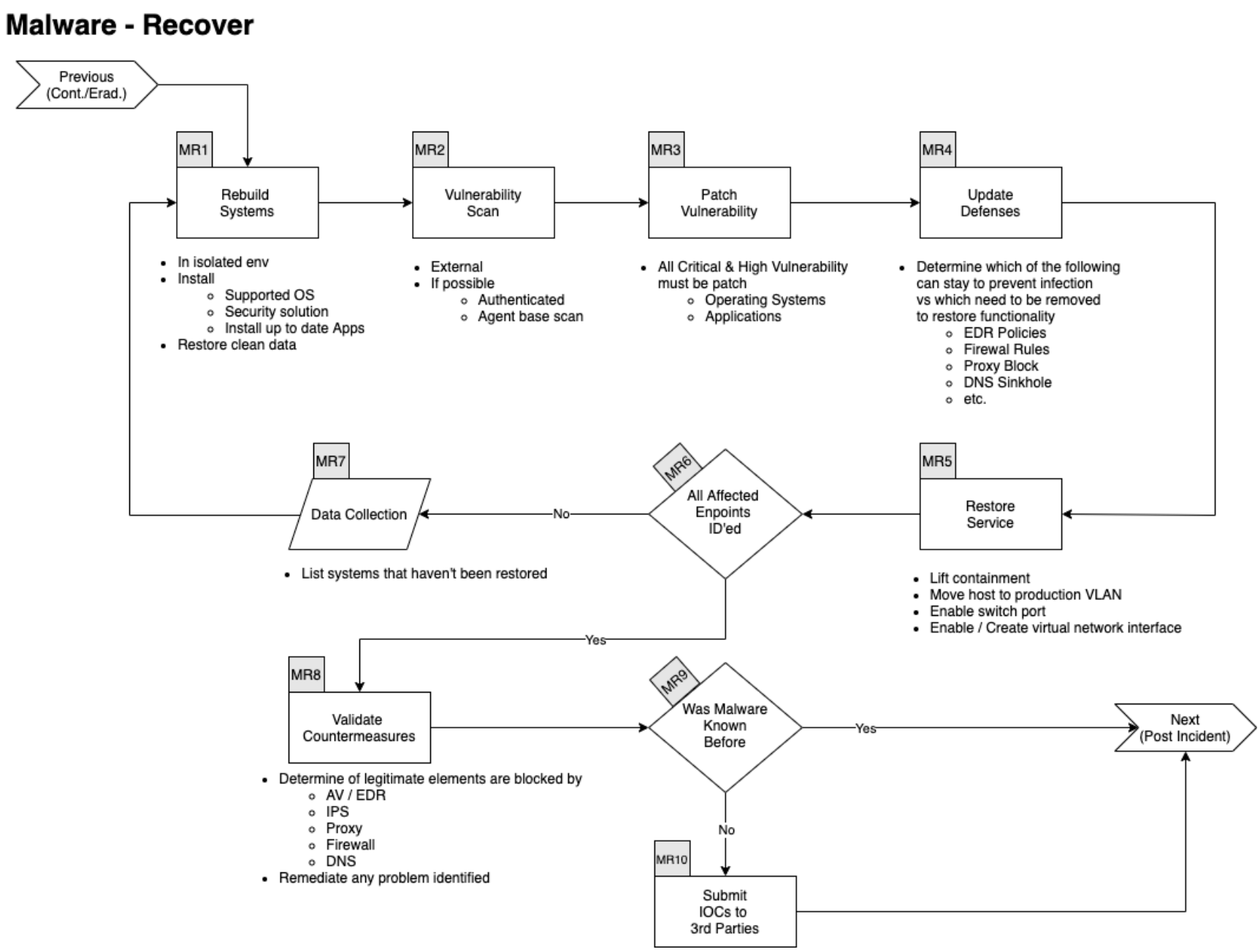
Otherwise continue with host containment

5. Recover

▼ Expand/Colapse

Workflow

▼ Expand/Colapse



MR1. Rebuilt Systems

▼ Expand/Colapse
In an isolated environment:
- Install - Supported OS - Security solutions - Up to date applications - Restore data (from a clean backup)

MR2. Vulnerability Scan

▼ Expand/Colapse
Perform:

- External VA
- If possible

    - Authenticated scan
    - Agent base scan

MR3. Patch Vulnerabilities

▼ Expand/Colapse
Any **Critical** or **High** vulnerability needs to be patched **before** the service is reestablish. This include, but it not limited to

- Operating Systems
- Applications
- Network Appliances

Medium and Low vulnerability should be patched if possible, but should not be mandatory for restoring the service/lifting containment.

MR4. Update Defenses

▼ Expand/Colapse
Determine which of the following rules needs to be removed and which needs to stay in the following list:

- Firewall Rules
- EDR
    - Ban hashes
    - Ban domains
    - Containment
- Proxy Block
- DNS Sinkhole
- Etc.

MR5. Restore Service

▼ Expand/Colapse
Depending on the containment applied to the host, perform all the following that applies:

- Lift containment in EDR console
- Move host to production VLAN
- Enable switch port
- Enable/Create virtual network interface
- etc.

MR6. All Affected Endpoints Restored?

▼ Expand/Colapse
If all affected endpoints have been restored, you can go to the phase, otherwise continue bellow.

- List systems that haven't been restored
- Go to [README.md#rebuild-systems]

MR8. Validate Countermeasures

▼ Expand/Colapse
Determine if legitimate elements are blocked by:

- AV / EDR
- IPS
- Proxy
- Firewall
- DNS
- Etc.

If so, apply the corrective action to restore functionality

MR9. Was Malware Known Before

▼ Expand/Colapse
If the malware was **not known** before the incident

- Validate with the Global Security Team if you can submit the sample to 3rd parties like
    - VirusTotal
    - Hybrid-Analysis
    - Any.run
    - Threat Grig
    - Google Safe Browsing
    - OpenIOC

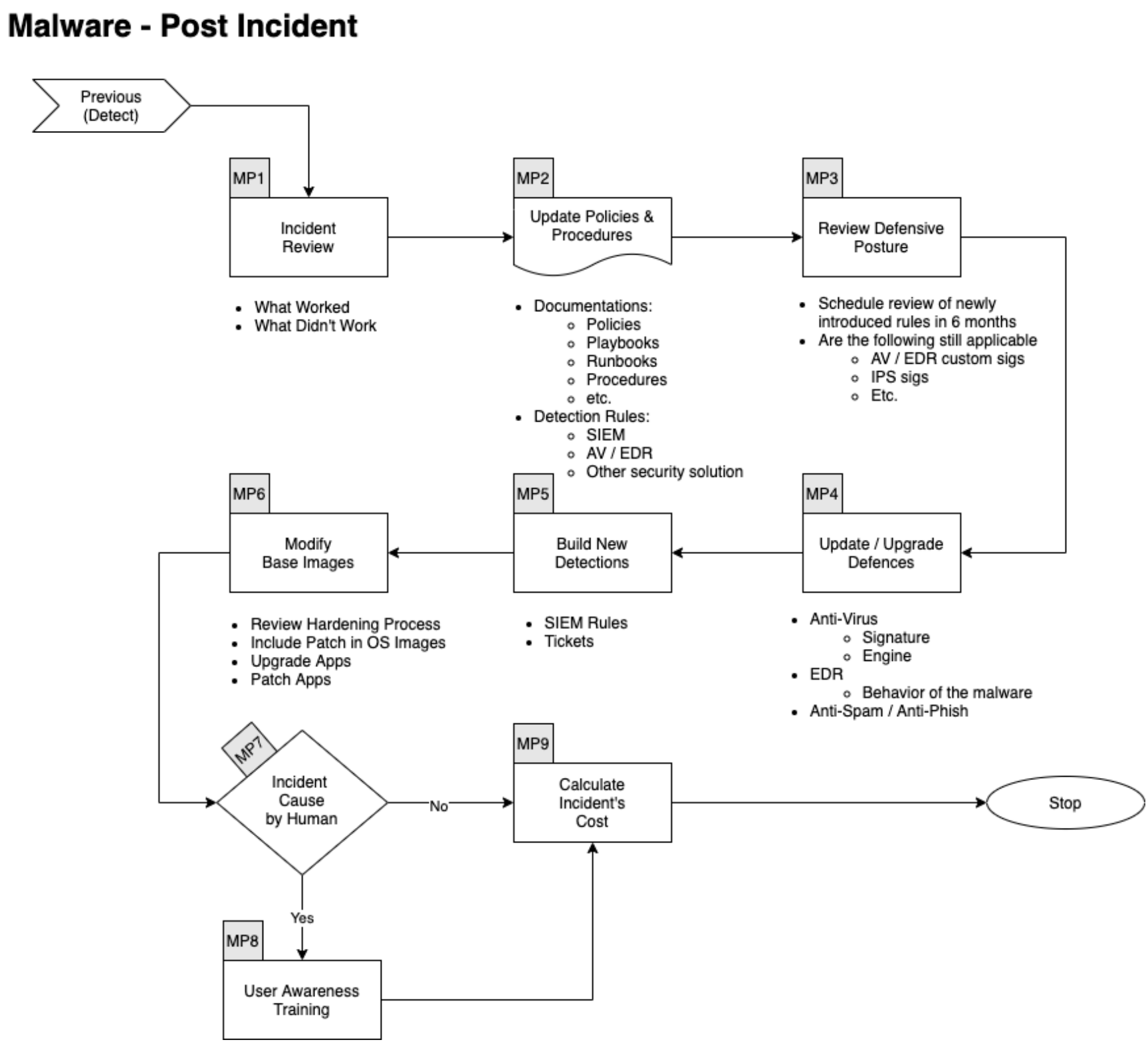
- Etc.

6. Post Incident

▼ Expand/Colapse

Workflow

▼ Expand/Colapse



MP1. Incident Review

▼ Expand/Colapse

- What worked
- What didn't work

MP2. Update Policies & Procedures

▼ Expand/Colapse

Update the following documents as requiered:

- Policies
- Processes
- Procedures
- Playbooks
- Runbooks

Update Detetion Rules in:

- SIEM
- Malware Gataway
- AV / EDR
- IPS
- Other security solution

MP3. Review Defensive Posture

▼ Expand/Colapse

- Schedule review of newly introduced rules in 6 months
- Are the following still applicatble
  - Firewall Rules
  - Proxy Rules for C2
  - AV / EDR custom Signatures
  - IPS Signatures
  - Etc.

MP4. Update & Upgrade Defenses

▼ Expand/Colapse

As we still have multiple AV & EDR Vendor, we must ensure **ALL** of them can detect this malware familly in the future.
Malware Sample should be sent to **ALL** AV and EDR vendor we work with. Once the AV/EDR vendor confirms they can detect the sample we need to make sure:

- Anti-Virus
  - Signatures are updated for all
    - Company Entities
    - Customers (Regardless of the region)
  - Engine are upgraded for all
- EDR Rules
  - To detect the behaviors of the malware
- Mail Service
- Anti-Spam / Anti-Phish
- etc.

MP5. Build New Detections

▼ Expand/Colapse

SIEM Rules could be created to catch this type of behaviors and create tickets.

MP6. Modifify Base Images

▼ Expand/Colapse

If the Malware Infection was caused by a lack of hardening or insufficient patch level:

- Review hardening processes
- Include critical patches in base images
- Consider upgrading application
- Apply Security Patch to application
- etc.

MP8. User Awareness Training

▼ Expand/Colapse

If the incident was caused by a human error

- Create / Select new mandatory training
  - From Security Education Vendor
  - From Youtube video
  - Built by internal teams

MP9. Calculate Incident's Cost

▼ Expand/Colapse

Phishing Playbook

Scope

This Playbook covers

1. Preparation

▼ Expand/Colapse

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Please referer to Tool1 Documentation

Tool2

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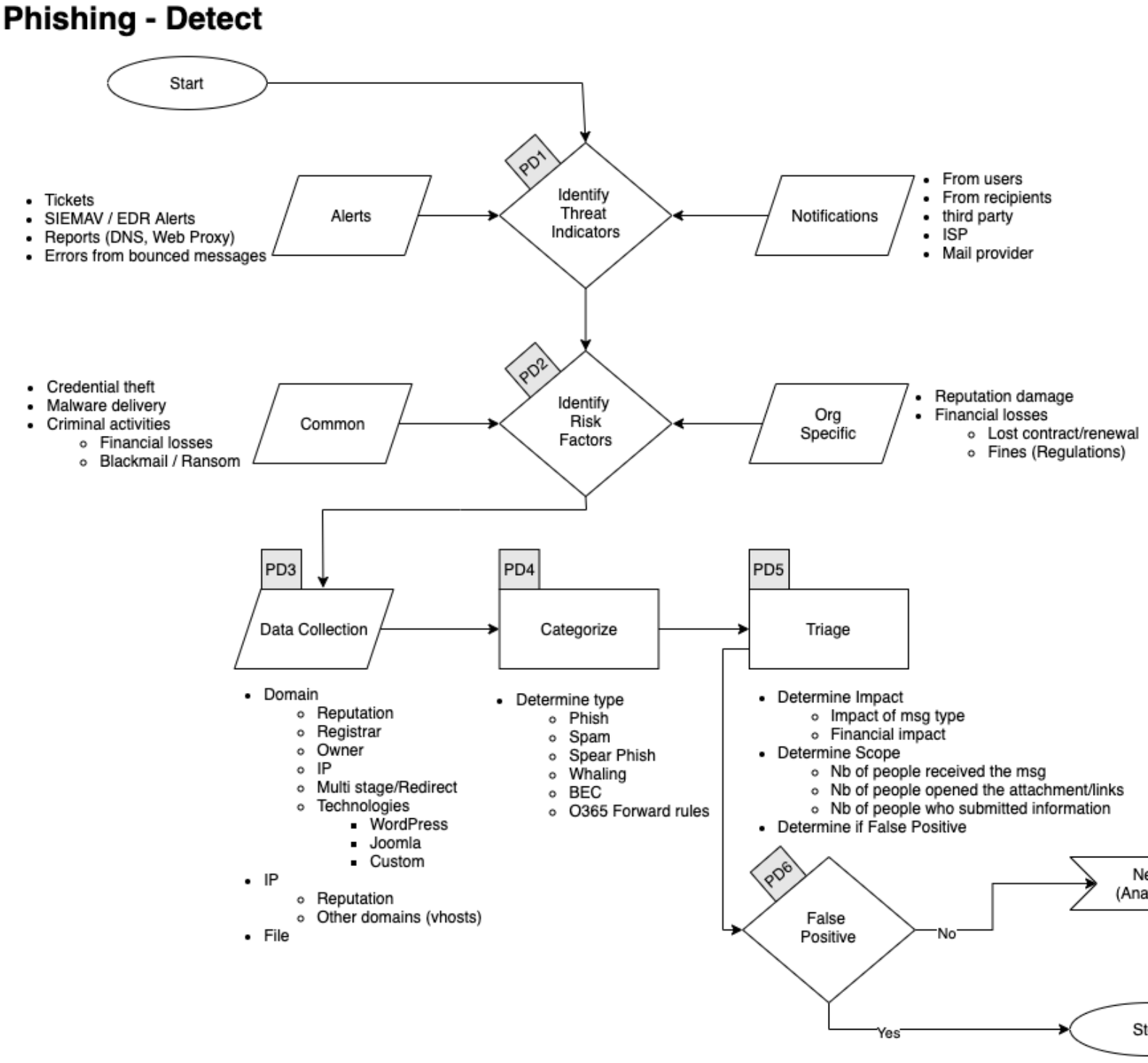
    - Network Equipements
    - Security Appliances
    - Network Ranges
        - Public
        - Private
        - VPN / Out of Band
            - Employees
            - Partners
            - Clients

2. Detect

▼ Expand/Colapse

Workflow

▼ Expand/Colapse



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- Recipents of emails (external)
- Third Parties
- ISP
- Mail Providers

Indentify Risks Factors

▼ Expand/Colapse

Common

- Credential Theft
- Malware Delivery
- Criminal Activites
    - Blackmail / Ransom

Company Specific

- Financial Losses
    - Lost of conctrat
    - Contract not renewed
    - Lower bid to our clients
    - Fines
        - Regulation

Data Colletion

This section describe the information that should be collected and documented about the incident
There is a lot of ressources to help you with that phase here

▼ Expand/Colapse
Domains

- Reputation
- Registrar
- Owner
- IP
- Multistage / Redirect
- Technologies of the site
    - WordPress
    - Joomla
    - Custom Page (credential phish)

IP

- Reputation
- Owner
- Geo Localisation
- Other domains on that IP

Categorize

▼ Expand/Colapse
Determine type of email

- Phish
    - Company Site rip-off
    - Common brand
        - Apple
        - FedEx
        - Netflix
        - Etc.
    - Company 3rd Party
        - O365
        - Other Cloud base solutions

- Spear Phish
- Whaling
- Spam
- BEC
- O365 Forward Rules

Triage

▼ Expand/Colapse
Determine

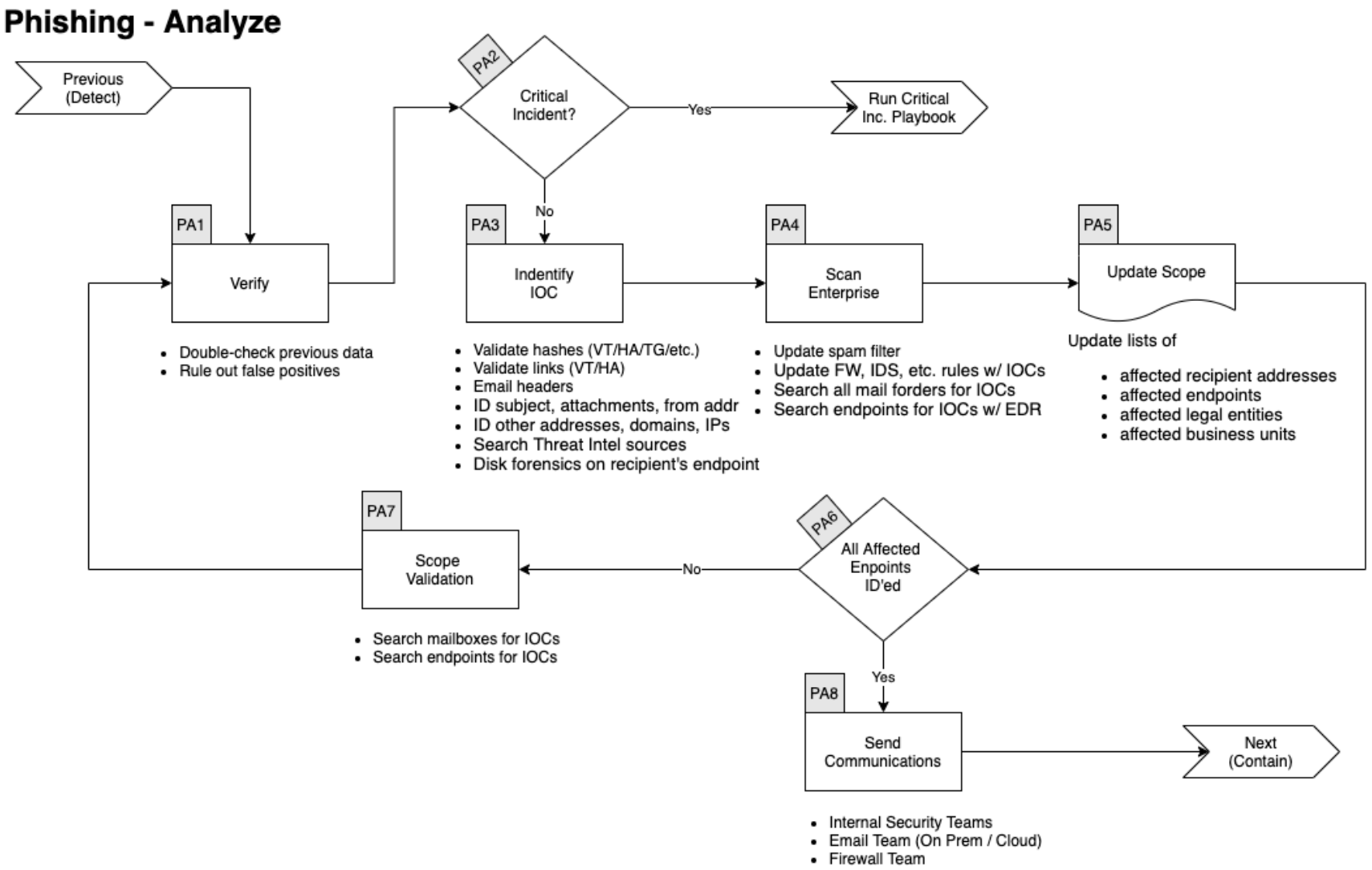
- Impact
  - Of the message
  - Financial
  - Data loss
- Scope (Nb of people)
  - Recieved the message
  - Opened the attachments
  - Clicked on the links
  - Submitted information

3. Analyze

▼ Expand/Colapse

Workflow

▼ Expand/Colapse



Verify

▼ Expand/Colapse
In conjonction with a senior member of the SOC

- Double check previous datsa
- Rule out False Positive

Identify IOCs

▼ Expand/Colapse

- Validate hashes
  - VirusTotal
  - Hybrid Analysis
- Validate links

    - VirusTotal
    - Hybrid Analysis
    - URLScan
- ID subject, attachments, from addr
- ID other addresses, domains, IPs
    - VirusTotal
    - Hybrid Analysis
    - Talos Intelligence
- Search Threat Intel sources
    - VirusTotal
    - Hybrid Analysis
    - Talos Intelligence
- Disk forensics on recipient's endpoint

Scan Enterprise

▼ Expand/Colapse

- Update spam filter
- Update FW, IDS, etc. rules w/ IOCs
- Search all mail forders for IOCs
- Search endpoints for IOCs w/ EDR

Update Scope

▼ Expand/Colapse

- Update lists of
    - affected recipient addresses
    - affected endpoints
    - affected enclaves
    - affected business units

Update Scope

▼ Expand/Colapse

- Update lists of
    - affected recipient addresses
    - affected endpoints
    - affected enclaves
    - affected business units

Scope Validation

▼ Expand/Colapse

Have all the machines been identified? If you find futher traces of phishing or new IOCs go back through this step.

When you are done identifying all compromised:

- Hosts
- Mailboxes

And investigated all:

- URLs
- Domains
- IP
- Ports
- Files
- Hash

Go to the next phase <Contain/Eradicate>

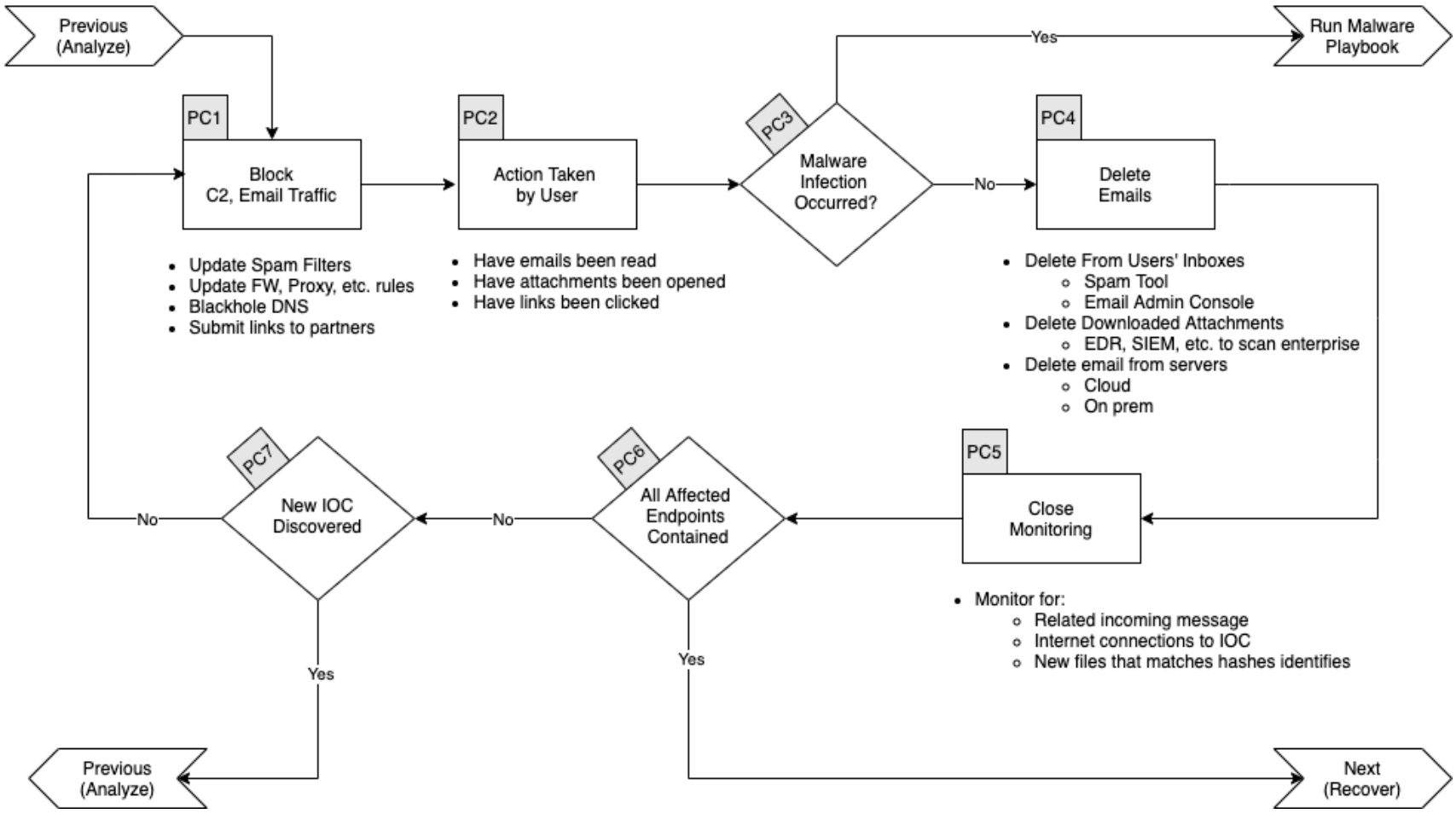
4. Contain / Eradicate

▼ Expand/Colapse

Workflow

▼ Expand/Colapse

Phishing - Contain / Eradicate



Block

▼ Expand/Colapse

- Update Spam Filters
- Update FW, Proxy, etc. rules
- Blackhole DNS
- Submit to thrid parties
  - Google Safe Browsing
  - Web Filter Vendor
  - etc.

Validate User's Actions

▼ Expand/Colapse

- Have emails been read
- Have attachments been opened
- Have links been clicked

Malware Infection?

▼ Expand/Colapse

If there was malicious attachments that were openned we need to assume the endpoint(s) was/were infected by a malware.
Please continue to the Malware Playbook

Delete Emails

▼ Expand/Colapse

- Delete From Users' Inboxes
  - Spam Tool
  - Email Admin Console
  - Cloud & On-Prem
- Delete Downloaded Attachments
  - EDR, SIEM, etc. to scan enterprise

Close Monitoring

▼ Expand/Colapse

- Monitor for
  - Related incoming messages
  - Internet connections to IOC
  - New files that matches hashes identified

All Affected Endpoints Contained?

▼ Expand/Colapse

If all affected endpoints have been contained, you can go to the next phase, otherwise continue bellow.

New IOC Discovered?

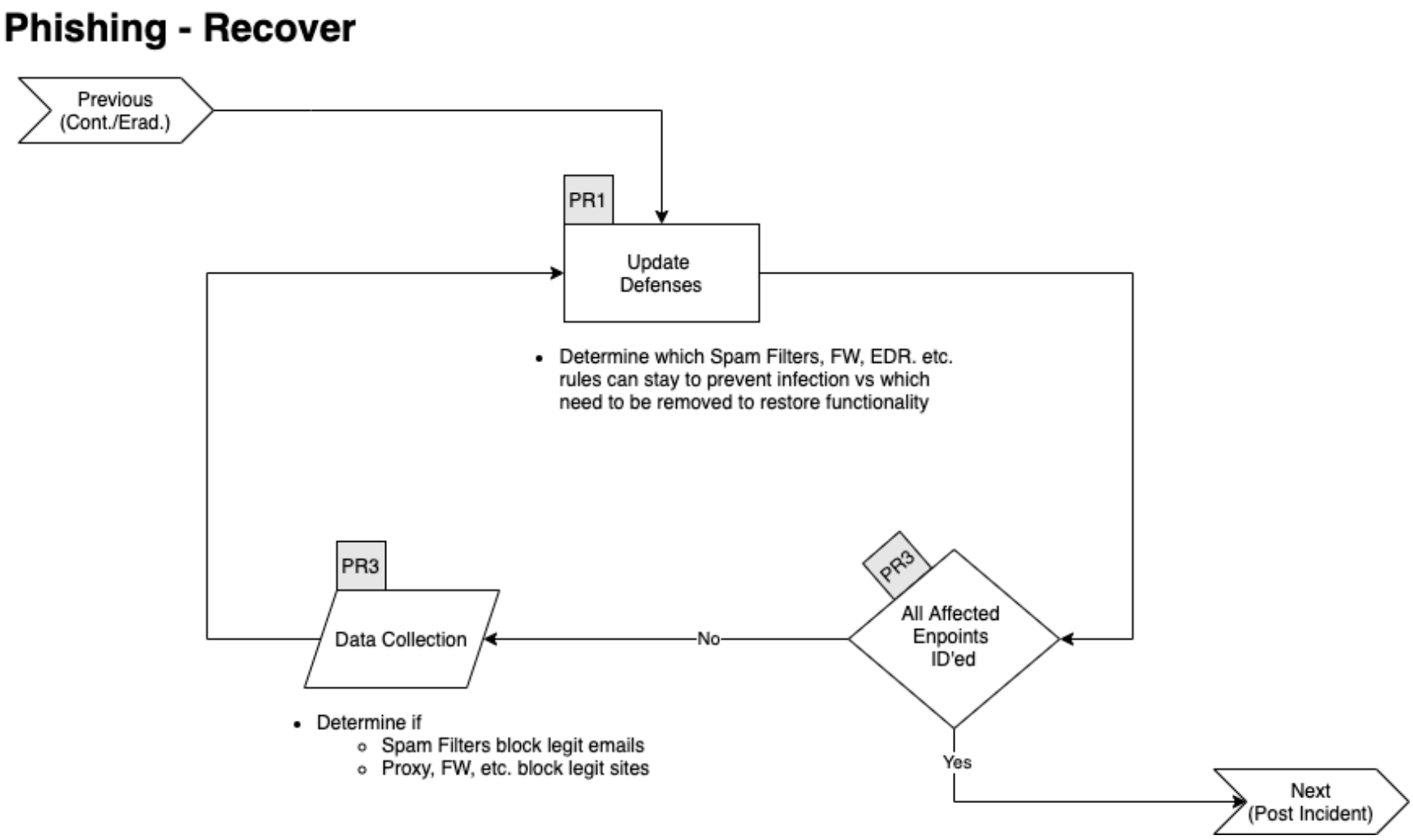
▼ Expand/Colapse
If there was new IOC discovered, go back to the Analyze Phase

5. Recover

▼ Expand/Colapse

Workflow

▼ Expand/Colapse



Update Defenses

▼ Expand/Colapse
Determine which of the following rules needs to be removed and which needs to stay in the following list:

- Spam Filters
- Firewall Rules
- EDR
  - ban hashes
  - ban domains
  - Containment
- Proxy Block

All Affected Endpoints Recovered?

▼ Expand/Colapse
If all affected endpoints have been contained, you can go to the next phase, otherwise continue bellow.

Validate Countermeasures

▼ Expand/Colapse
Determine if legitimate elements are blocked by:

- Spam Filters
- Proxy
- Firewall
- EDR

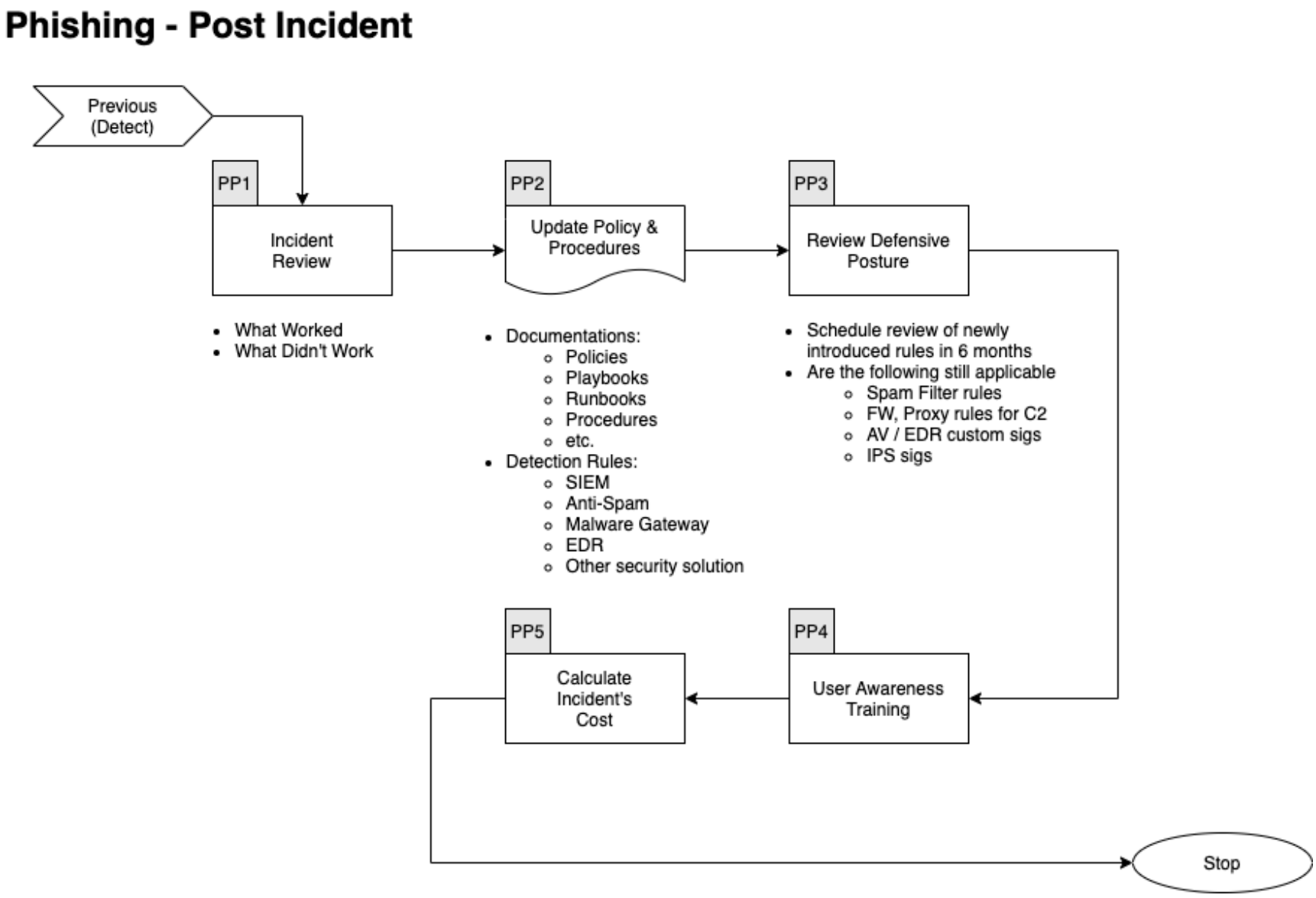
If so, go back to Update Defenses Otherwise go to the next phase

6. Post Incident

▼ Expand/Colapse

Workflow

▼ Expand/Colapse



Incident Review

▼ Expand/Colapse

- What worked
- What didn't work

Update Mode of Operations

▼ Expand/Colapse

Update the following documents as requiered:

- Policies
- Processes
- Procedures
- Playbooks
- Runbooks

Update Detetion Rules in:

- SIEM
- Anti-Spam
- Malware Gataway
- EDR
- Other security solution

Review Defensive Posture

▼ Expand/Colapse

- Schedule review of newly introduced rules in6 months
- Are the following still applicatble
  - Spam Filter Rules
  - Firewall Rules
  - Proxy Rules for C2
  - AV / EDR custom Signatures
  - IPS Signatures

User Awareness Training

▼ Expand/Colapse

- Ensure that the user receives Phishing training

- How to recognize Phish
- How to report Phish
- Danger of following links
- Danger of opening attachments
- Danger of compliying with scammers requests

Ransom Playbook

Scope

This Playbook covers various type of Ransom we could be faced with. The most common being Ransomware but we try to also account for other types.
It was built to be run in parallele with the Malware Playbook and possibly the Critical Playbook

1. Preparation

▼ Expand/Colapse

- Create and maintain a list of
    - all domains owned by Company.
        - This can prevent you from taking actions against our own domains
    - all people of can register domains
- Create email template
    - to notify all employees of ongoing phishing campaing against the organization
    - to contact hosting companies for domain take down
    - to inform 3rd party to take actions against phishing on there infra (Microsoft, Fedex, Apple, etc.)
- Ensure that:
    - Mail anti-malware/anti-spam/anti-phish solutions are in place.
    - Users know how to report phish
    - Detection exists for office documents spawning processes
        - PowerShell
        - CMD
        - WMI
        - MSHTA
        - Etc.
- Perform Firedrill to ensure all aspects of the Playbook are working
    - After publication
    - At least once a year
    - Test/Validate:
        - Customer's Cards
        - Internal Contact and Escalation Paths
- Review threat intelligence for
    - threats to the organisation,
    - brands and the sector,
    - common patterns
    - newly developing risks and vulnerabilities
- Ensure appropriate access to any necessary documentation and information, including out-of-hours access, for the following
    - IR Playbgns to highlight information security risks faced by employees, including:
    - Phishing attacks and malicious emails;
    - Ransomware;
    - Reporting a suspected cyber incident.

Tool Access and Provisioning

Tool1

Please referer to Tool1 Documentation

Tool2

Please referer to Tool2 Documentation

Assets List

- A list of assets and owner should exists and be available for the following
  - Customers Assets
    - Owners
    - Contacts
    - Pre authorized actions
  - Company Assets (Including all filiale and business units)
    - Owners
    - Contacts
    - Administrators
    - Pre autorized actions
- Type of assets inventory needed
  - Endpoints
  - Servers
  - Network Equipements
  - Security Appliances
  - Network Ranges
    - Public
    - Private
    - VPN / Out of Band
      - Employees
      - Partners
      - Clients

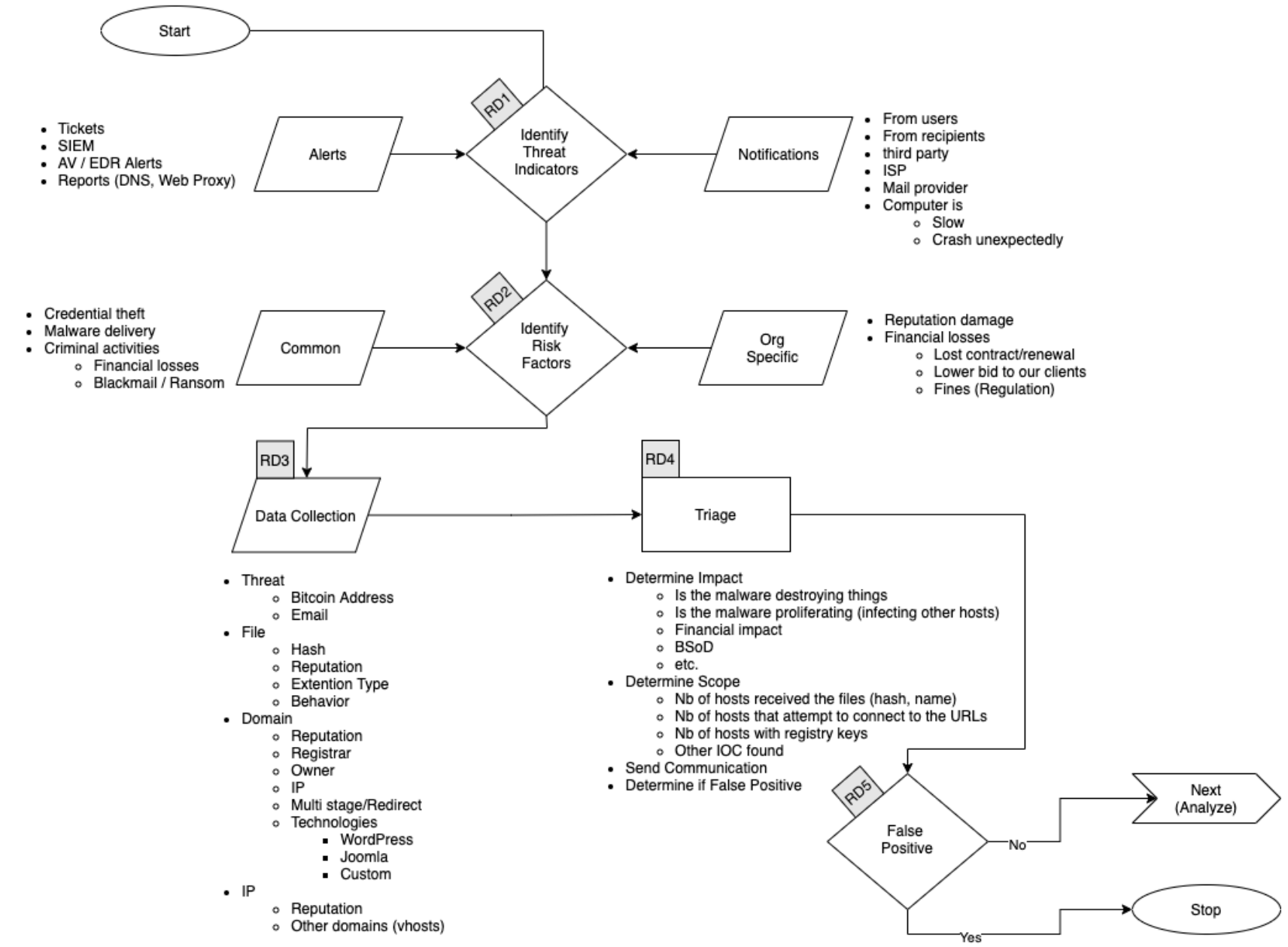
2. Detect

▼ Expand/Colapse

Workflow

▼ Expand/Colapse

Ransom - Detect



RD1. Identify Threat Indicators

▼ Expand/Colapse

Alerts

Alerts are be generated by differents systems owned by the Security/SOC team. The main sources for alerts are

- Tickets
- SIEM
- Anti-Virus / EDR
- Reports
  - DNS
  - Web Proxy
- Errors from mail servers

Notifications

Notifications are comming from external sources usually via email, Teams or phone. The main sources for notifications are

- Users (internal)
- Recipents of emails (external)
- Third Parties
- ISP
- Mail Providers

RD2. Indentify Risks Factors

▼ Expand/Colapse

Common

- Credential Theft
- Malware Delivery
- Criminal Activites
  - Blackmail / Ransom

Company Specific

- Financial Losses
  - Lost of conctrat
  - Contract not renewed
  - Lower bid to our clients
  - Fines
    - Regulation

RD3. Data Colletion

This section describe the information that should be collected and documented about the incident
There is a lot of ressources to help you with that phase here

▼ Expand/Colapse
Domains

- Reputation
- Registrar
- Owner
- IP
- Multistage / Redirect
- Technologies of the site
  - WordPress
  - Joomla
  - Custom Page (credential phish)

IP

- Reputation
- Owner
- Geo Localisation
- Other domains on that IP

Categorize

▼ Expand/Colapse
Determine type of

RD4. Triage

▼ Expand/Colapse
Determine

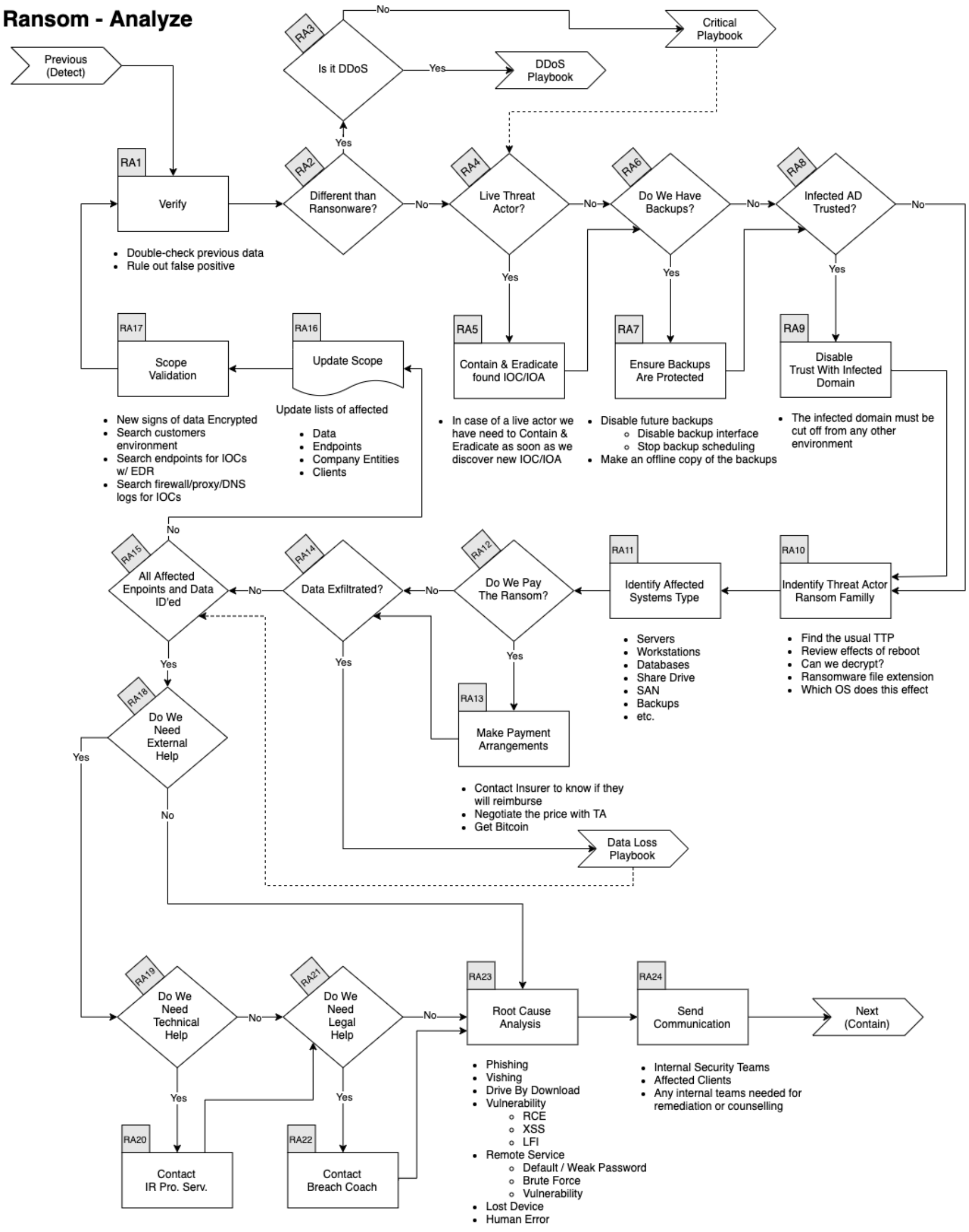
- Impact
  - Of
  - Financial
  - Data loss
- Scope (Nb of people)

3. Analyze

▼ Expand/Colapse

Workflow

▼ Expand/Colapse



RA1. Verify

▼ Expand/Colapse
In conjonction with a senior member of the SOC

- Double check previous data
- Rule out False Positive

RA2. Identify type of Ransom

▼ Expand/Colapse
The first thing we need to do is understand which type of Ransom we are dealing with.

- Is this a Ransomware?
- Is this a DDoS related Ransom?
  - For now, we do not have a DDoS Playbook, so referer to the Critical Playbook

If it's another type, you should follow the Critical Playbook and escalate to the SOC and/or Security management.

RA4. Assess if the Threat Actor is still in the Network

▼ Expand/Colapse
Depending if the actor has succesfully encrypted the data or if they are still actively trying, the speed at which we must act is different.
If the actor is still in the network, the containment effort needs to be taken as fast as possible and the Contain & Eradicate actions will be intertwined with the Analysis.

RA6. Do We Have Backup?

▼ Expand/Colapse
If we have backups, we must make sure they are protected and not overriten. Here's some of the steps that needs to be taken:

- Disable future backups
  - Disable backup Interface
  - Stop backup scheduling
- Make an offline copy of the backup

RA8. Is the infected environment (AD) trusted by other environment?

▼ Expand/Colapse
In order to provent the adversaries to reach other domains that could be linked, we need to

- Disable any Trust from that domain to others
- In some cases, we might need to disconnect the MPLS Link
  - This needs management approval (refer to the Critical Playbook)

RA10. Identify Threat Actor/Ransomware Familly

▼ Expand/Colapse
Using the various artefacts, we need to identify who our adversary is. This will help

- Know the TTP they typically use
- Potentially indetify the Initial Access technique
- Understand how they move laterally
  - WMI
  - PSExec
  - RDP
  - Etc.
- Understand the effect of a reboot on the machine
- Is there a known decryptor
  - This is increasingly less frequent
- Which OS version are targeted

Things that we can use to identify the adversary:

- Ransomware note
- Malware payload
- Encrypted file extentions
- Email / Web portal
- Bitcoin addresses
- etc.

RA11. Identify Affected Systems Type

▼ Expand/Colapse
In order to remediate properly and engage the right team(s) we need to understand which type of systems were affected:

- Servers
  - OS version
  - Kernel
- Workstations
  - OS version
  - Service Pack
- Databases
- Share Drives
- SAN
- Backups
- Etc.

RA12. Do We Pay the Ransom?

▼ Expand/Colapse

Depending on the state of the backups, the type of devices that was encrypted, we might need to pay the ransom.
NOTE: This decision must be taken by the Board (or the client(s)), but we are here to help advice.

Here a some things think about if we decide to pay:

- Will the insurer cover/reimbourse?
- Most of threat actors are open to negociation and we should **always** negociate the price down
- We need to get Bitcoin on a trusted exchange

RA14. Was Data Exfiltrated?

▼ Expand/Colapse
If data was exfiltrated we need to refer to the the Data Loss Playbook

RA15. Were All Endpoints and Data Identified?

▼ Expand/Colapse
If we have found new affected endpoints or data go to the next section.

If we have identified all endpoints and data you can jump to Do we need external help

- Update FW, IDS, etc. rules w/ IOCs
- Search endpoints for IOCs w/ EDR

RA16. Update Scope

▼ Expand/Colapse
- Update lists of
  - affected endpoints
  - affected Company Entities
  - affected clients

RA17. Scope Validation

▼ Expand/Colapse
Have all the machines been identified? If you find futher traces of phishing or new IOCs go back through this step.

When you are done identifying all compromised:

- Hosts
- Data

You can continue to the next phase.

RA18. External Help

▼ Expand/Colapse
Does Company have all the knowledge and ressources to handle the crisis alone?

RA19. Technical Help

▼ Expand/Colapse
The Incident Commander can reach out to a 3rd Party Incident Responder

- xxxx@yyyy.com
- 555-555-1212

RA21. Legal Help

▼ Expand/Colapse
If there are Legal implication such as

- GDPR
- Criminal Charges
- Regulation
- Laws

The Incident Commander can reach out to a Breach Coach / Cyber Insurer

- aaa@bbb.com
- 555-555-1212

RA23. Root Cause Analysis

▼ Expand/Colapse
Identify how this incident happened.

- Phishing Emails
- Voice Phishing
- Drive-by Download
- Vulnerability
  - Remote Code Execution
  - Cross-Site Scripting
- Remote Services
  - Default / Weak Password
  - Brute Force
  - Vulnerability
- Lost Device
- Human Error

RA24. Send Communincation

▼ Expand/Colapse
Contact any relevant of the following party

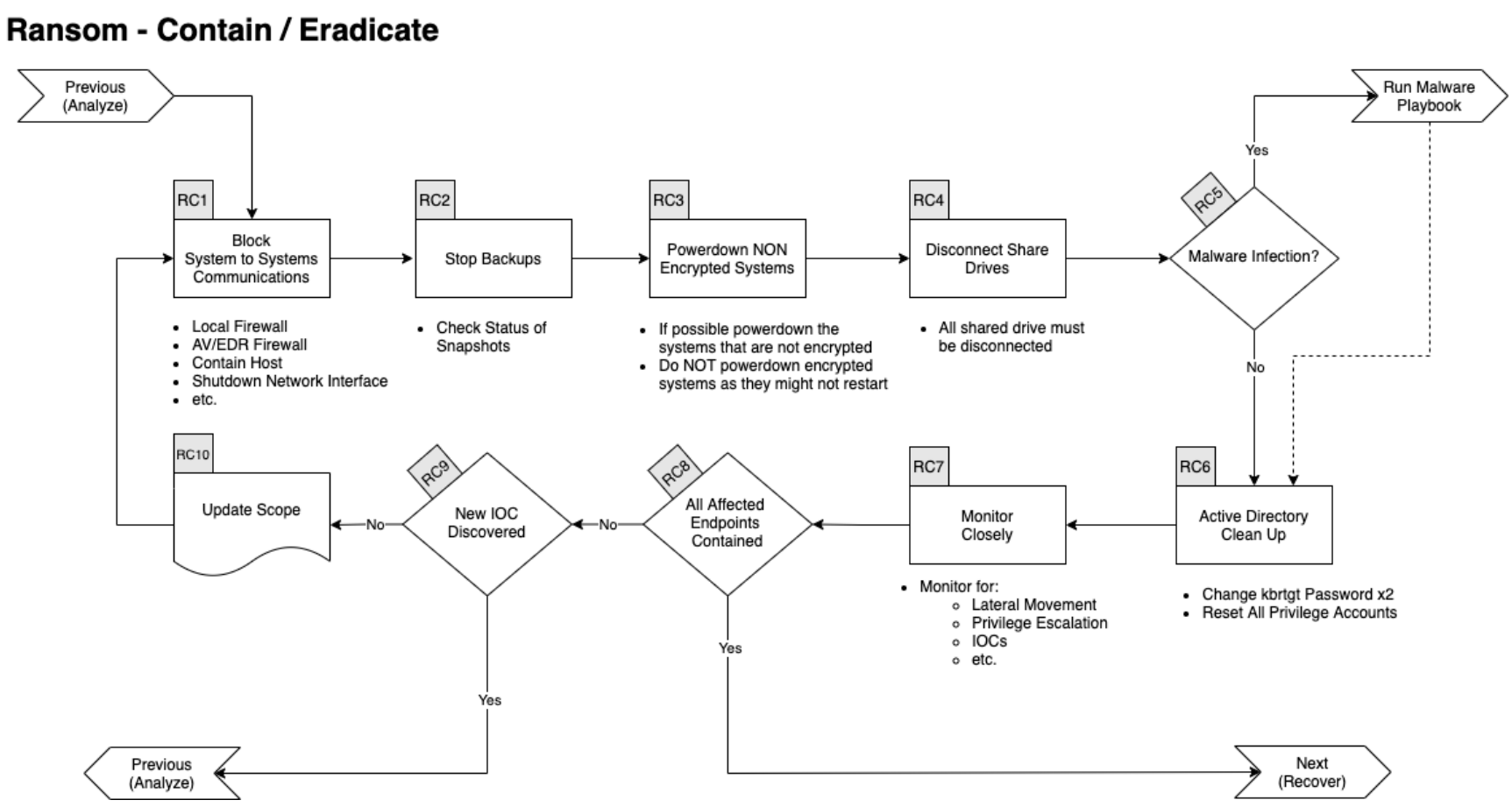
- Internal Security Team
- Affected Clients
- Any internal teams needed for remediation or counselling

4. Contain / Eradicate

▼ Expand/Colapse

Workflow

▼ Expand/Colapse



RC1. Block Systems to Systems Communincations

▼ Expand/Colapse
The first things we need to do with ransomware is to block systems to systems communincation. We can do this using various methods such as: - EDR containment fonction - Local Firewall - This could be circonvented if the adversary is still on the system - AV/EDR Firewall - Shutdown Network Interface - This mostly apply to VM - Disable the switch port on the router - Etc.

RC2. Stop Backups

▼ Expand/Colapse
- Check status of Snapshots

RC3. Powerdown NON Encrypted Systems

▼ Expand/Colapse
- If possible powerdown the systems that are not encrypted
- Do NOT powerdown encrypted systems as they might not restart

RC4. Disconnect Share Drives

▼ Expand/Colapse

- All shared drive must be disconnected

RC5. Malware Infection

▼ Expand/Colapse

- If there is a Malware infection run the Malware Playbook

RC6. Active Directory Clean Up

▼ Expand/Colapse

In most cases these actions should be sufficient:

- Change kbrtgt Password twice
- Reset All Privilege Accounts

In cases where we beleive Domain Admin account(s) were compromised we have to do the following **before** the steps above:

- Restore the AD from backup that predate the initial compromised
- If no backup exists:
  - Consider rebuiling the AD from scratch.
  - Change how we protect sensitive Accounts

  The decision to rebuilt from strach should come from the higher management of the Global-Security Team or of the client's security team.

RC7. Monitor Closely

▼ Expand/Colapse

- Monitor for:
  - Lateral Movement
  - Privilege Escalation
  - IOCs
  - etc.

RC9. New IOC Discovered

▼ Expand/Colapse

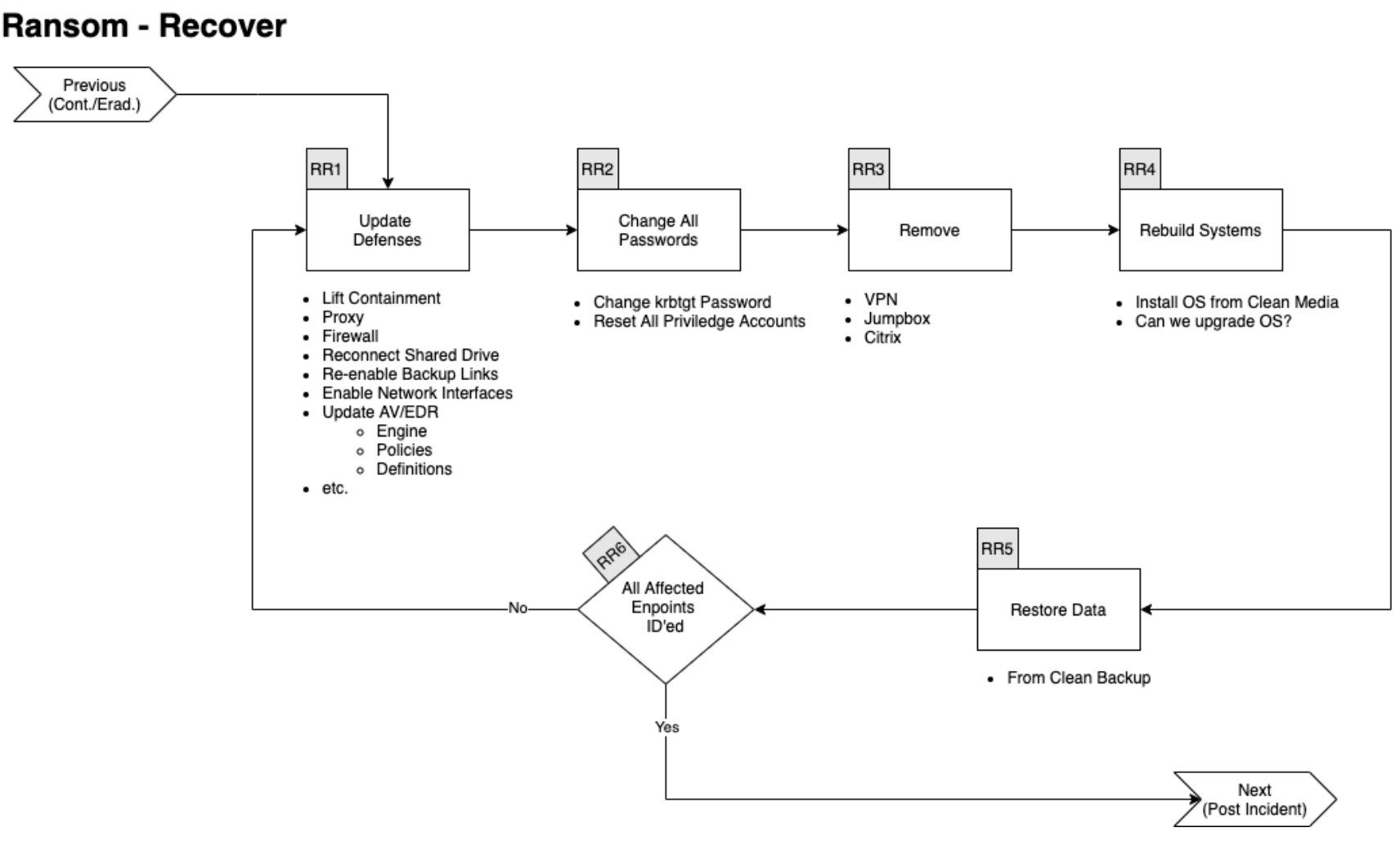
- Go back to Ransom Analyze

5. Recover

▼ Expand/Colapse

Workflow

▼ Expand/Colapse



RR1. Update Defenses

▼ Expand/Colapse
Determine which of the following actions need to be performed:

- Lift Containment
- Proxy Block
- Firewall Rules
- Reconnect Shared Drives
- Re-enable Backup Links
- Enable Network Interfaces
- Update EDR/AV
  - Engine
  - Policies
  - Definitions

RR2. Change All Passwords

▼ Expand/Colapse
- Change krbtgt Password
- Reset All Priviledge Accounts

RR3. Remove

▼ Expand/Colapse
- VPN
- Jumpbox
- Citrix

RR4. Rebuild Systems

▼ Expand/Colapse
- Install OS from Clean Media
- Can we upgrade OS?

RR5. Restore Data

▼ Expand/Colapse
- Use a clean backup

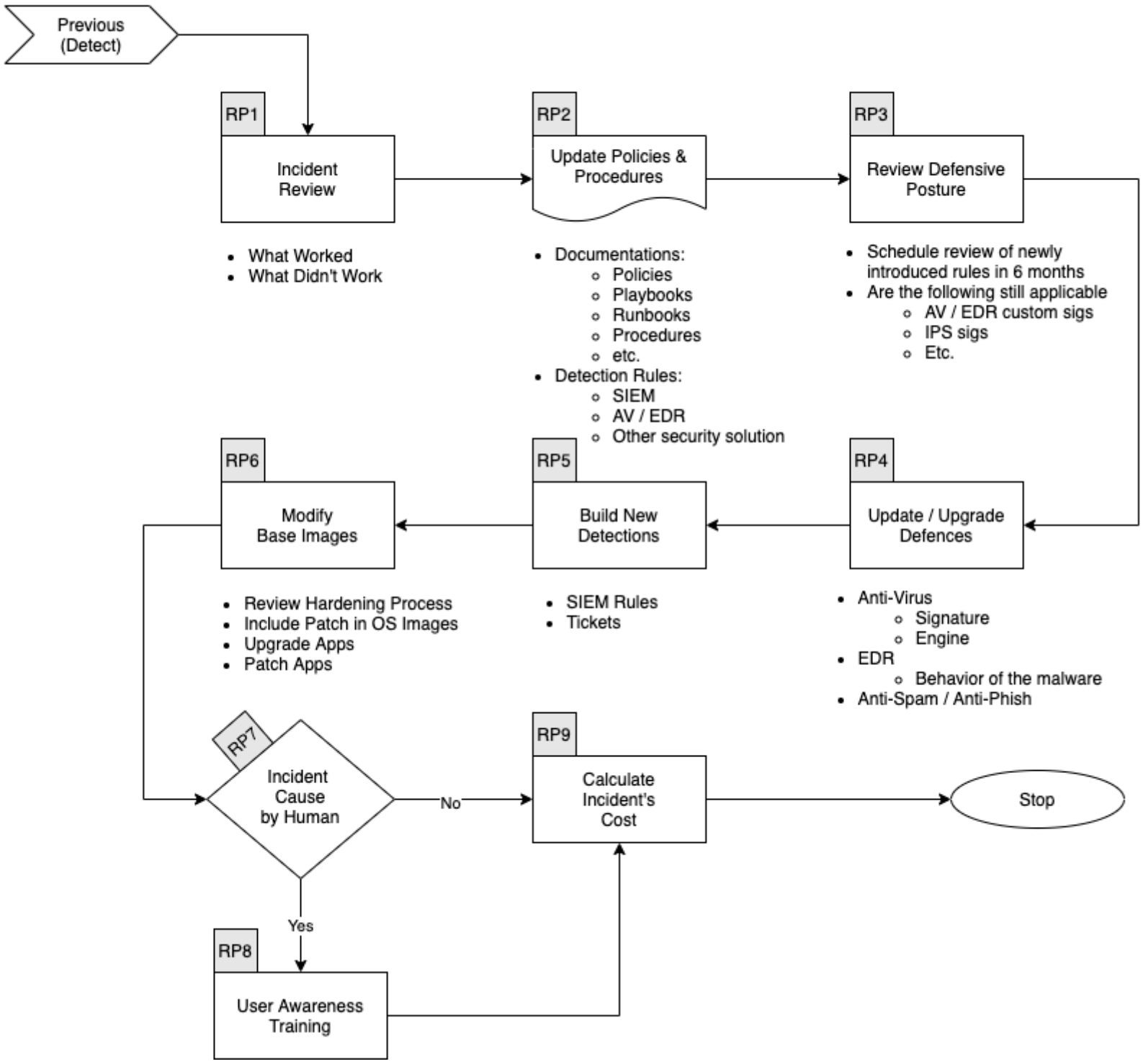
6. Post Incident

▼ Expand/Colapse

Workflow

▼ Expand/Colapse

Ransom - Post Incident



RP1. Incident Review

▼ Expand/Colapse

- What worked
- What didn't work

RP2. Update Mode of Operations

▼ Expand/Colapse

Update the following documents as requiered:

- Policies
- Processes
- Procedures
- Playbooks
- Runbooks

Update Detetion Rules in:

- SIEM
- Anti-Spam
- Malware Gataway
- EDR
- Other security solution

RP3. Review Defensive Posture

▼ Expand/Colapse

- Schedule review of newly introduced rules in6 months
- Are the following still applicatble
  - Firewall Rules
  - Proxy Rules for C2
  - AV / EDR custom Signatures

    - IPS Signatures

RP4. Update & Upgrade Defenses

▼ Expand/Colapse
Various security solutions might need to be updated or upgraded to prevent a similar incident from occuring again.

Here are a few items to consider:

- Anti-Virus
  - Signatures
  - Engine
- EDR
  - Behaviour (TTP)
  - Custom Detection
- Anti-Spam
  - Filter
- Anti-Phishing

RP5. Build New Detection

▼ Expand/Colapse
If the incident was detected late in the Kill Chain, we need to try to improve our detection to catch a similar incident earlier.
We could for instance:

- Create SIEM rules
- Generate SNOW tickets
- Create Miro Plays
- etc.

RP6. Modifify Base Images

▼ Expand/Colapse
If the Ransom was caused by a lack of hardening or sufficient patch level:

- Review hardening processes
- Include critical patches in base Images
- etc.

RP7. User Awareness Training

▼ Expand/Colapse
If the incident was caused by a human error

- Create / Select new mandatory training
  - From Security Education Vendor
  - From Youtube video
  - Built by internal teams

RP9. Calculate Incident's Cost

▼ Expand/Colapse
Calculate the incident's Cost

- Time Spent
- Ransom paid
- Downtime
- Fines / Penalities
- etc.