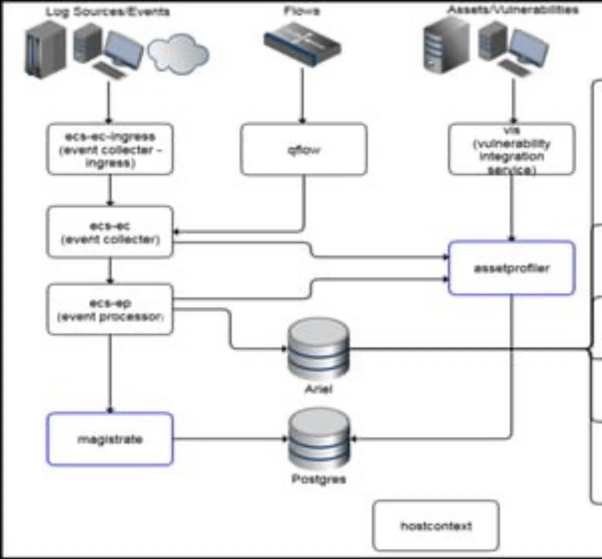
How QRadar SIEM Collec
Security Data

IBM Security

QRadar Data Flow - Overall



From an Appliance Perspectiv

Event Collector Capabilities

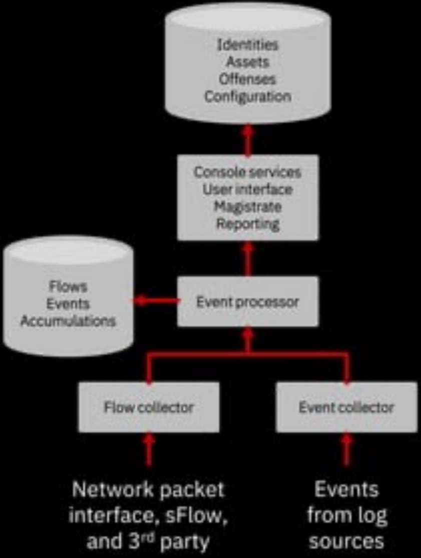
From an Appliance Perspectiv

Event/Flow Processor Capabilities

From an Appliance Perspectiv

AIO/Console Capabilities

High-level component architecture a



Flow and
database

- If accum
  in Ariel a
- As soon
  proof)
- Data car

Offenses,
stored in
Console

- Provides
  process

Secure SS
a distribu

QRadar Data Flow - Overall

Collecting and Normalizing raw event

An *event* is a record from a device that describ

QRadar SIEM normalizes the varied information found i

- Normalizing means to map information to common
  - SRC_IP, Source, IP, and others are normalized to
  - user_name, username, login, and others are nor
- Normalized events are mapped to high-level and lo processing.
- After raw events are normalized, it is easy to search normalized events.

Event data pipeline

Event data is sent to or pulled by QRadar

Event Collector Ingress – Responsible for collecting data at all times (zero event loss)

Data is collected and buffered during patch and deploys and processed once the operation is complete

Protocols – Reads or pulls raw data from network devices (e.g: Windows Servers, Firewalls, etc)

Throttle Filter - Licensing - On a second-by-second basis, slows down the incoming rate so it does not exceed the license on the appliance.

Events are sent to ecs-ec-parse to be parsed

Event data pipeline

Event data is received from the ecs-ec-ingress

Parsing – DSMs / LSX / CEP – take the raw data and normalize it into a common structure.

Coalescing - “Event Compression”. Find nearly identical events and delete one and increase the event count on the record. Key is: source IP, dest IP, dest port, QID, username

Forwarding - Applies routing rules for the system, such as sending event data to offsite targets, external Syslog systems, JSON systems, and other SIEMs.

Log Only/Data Store supports the storage of an unlimited number of logs without counting against the EPS License

Events are then sent to the **Event Processor** component and pass through the Custom Rules Engine (CRE).

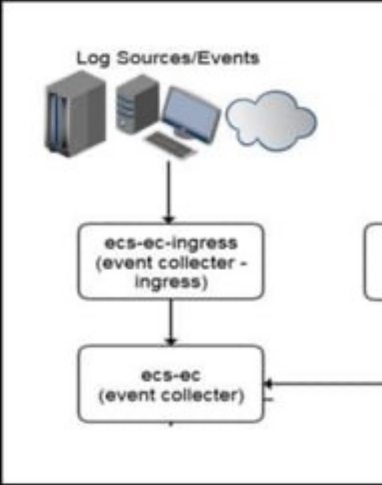
Events not counted against the EPS l

- The list of log source types that do not incur EPS hits are
    - System Notification
    - Custom Rule Engine (CRE)
    - SIM Audit
    - Anomaly Detection Engine
    - Asset Profiler
    - Search Results from scheduled searches
    - Health Metrics
    - Sense DSM
    - Risk Manager questions, Simulations and internal l
    - Log Only/Data Store
    - Supports the storage of an unlimited number of log SIEM license
    - Enables an organization to build custom apps and r deeper insights into IT environments.

Event Coalescing

- Event Coalescing is a method of reducing the dat
- As data arrives in the pipeline QRadar will attemp single event.
- Coalescing occurs after licensing and parsing
- Coalescing is indexed by Log Source, QID, Source and Username.
- If more than 4 events arrive within a 10 second w identical any additional events beyond the 4th wil
- Coalesced events can be identified by looking at t viewer, if the Event Count is >1 the event has bee
- Coalescing can be turned on or off per log source the system setting page.

QRadar Data Flow - Overall



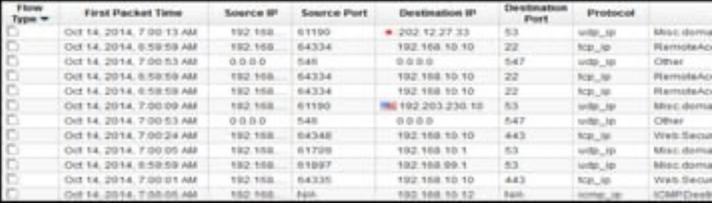
Flow collection and processing

A flow is a communication session between two hos

QFlow Collectors read packets from the wire or rece

QFlow Collectors convert all gathered network data events; they include such details as:

- when, who, how much, protocols, and options.



Flow Type ▾	First Packet Time	Source IP	Source Port	Destination IP	Destination Port	Protocol	
☐	Oct 14, 2014, 7:00:13 AM	192.168...	61190	202.12.27.33	53	udp_ip	Misc.doma
☐	Oct 14, 2014, 6:59:59 AM	192.168...	64334	192.168.10.10	22	tcp_ip	RemoteAc
☐	Oct 14, 2014, 7:00:53 AM	0.0.0.0	546	0.0.0.0	547	udp_ip	Other
☐	Oct 14, 2014, 6:59:59 AM	192.168...	64334	192.168.10.10	22	tcp_ip	RemoteAc
☐	Oct 14, 2014, 6:58:59 AM	192.168...	64334	192.168.10.10	22	tcp_ip	RemoteAc
☐	Oct 14, 2014, 7:00:09 AM	192.168...	61190	192.203.230.10	53	udp_ip	Misc.doma
☐	Oct 14, 2014, 7:00:53 AM	0.0.0.0	546	0.0.0.0	547	udp_ip	Other
☐	Oct 14, 2014, 7:00:24 AM	192.168...	64348	192.168.10.10	443	tcp_ip	Web.Secu
☐	Oct 14, 2014, 7:00:05 AM	192.168...	61709	192.168.10.1	53	udp_ip	Misc.doma
☐	Oct 14, 2014, 6:59:59 AM	192.168...	61897	192.168.99.1	53	udp_ip	Misc.doma
☐	Oct 14, 2014, 7:00:01 AM	192.168...	64335	192.168.10.10	443	tcp_ip	Web.Secu
☐	Oct 14, 2014, 7:00:05 AM	192.168...	N/A	192.168.10.12	N/A	icmp_ip	ICMP.Dest

Flow pipeline

The **QFlow** component collects and creates flow information from internal and external flow sources

Event Collector – Responsible for parsing and normalizing incoming flows

Asymmetric recombination - Responsible for combining two sides of each flow when data is provided asymmetrically

Deduplication - Flow deduplication is a process that removes duplicate flows when multiple Flow Collectors provide data to Flow Processors appliances.

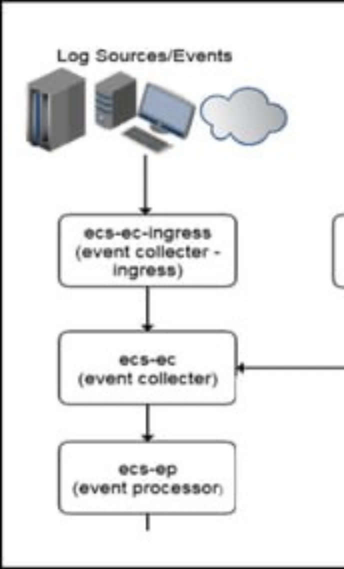
Flow Governor - Monitors the number of incoming flows to the system to manage input queues and licensing.

Custom flow properties – extracts any properties defined in the Custom Flow Properties

Forwarding - Applies routing rules for the system, such as sending flow data to offsite targets, external Syslog systems, JSON systems, and other SIEMs.

Flows are then sent to the **Event Processor** component and pass through the Custom Rules Engine (CRE). They are tested and correlated against the rules that are configured

QRadar Data Flow - Overall



Log Sources/Events

ecs-ec-ingress (event collecter - ingress)

ecs-ec (event collecter)

ecs-ep (event processor)

Event & Flow Correlation and Proces

After Events and Flows are normalized they are then sent to the Event Processor for processing

Licensing is applied again on ingress to the EP

The CRE or Custom Rules Engine Applies the correlation rules that were created in the UI.

Flow data is then sent to the Ariel Database for storage.

Host Profiling – Also called passive profiling or passive scanning. Watches flows on the network in order to make educated guesses about which IPs/assets exist and what ports are open.

Streaming – Responsible for the "real time (streaming)" view in User Interface

If an event matches a rule, **the Magistrate** component generates the response that is configure in the custom rule

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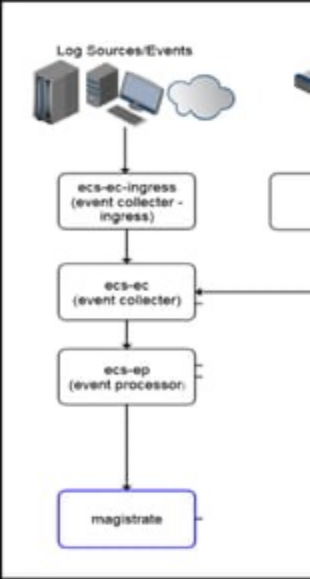


Log Sources/Events

ecs-ec-ingress (event collecter - ingress)

ecs-ec (event collecter)

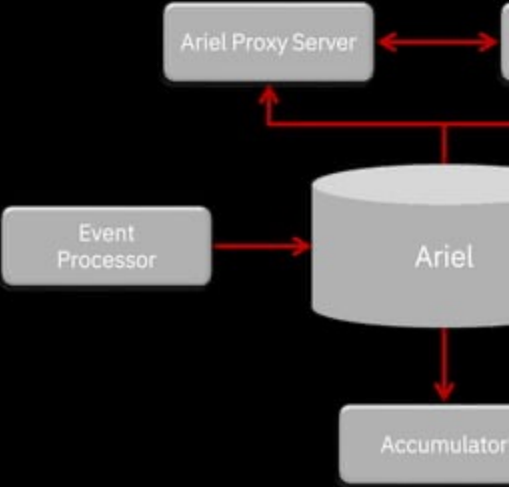
ecs-ep (event processor

magistrate

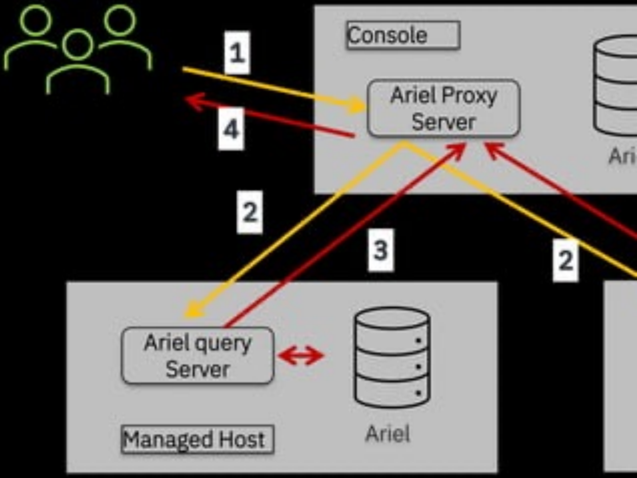
Magistrate

- The Magistrate creates and stores **offenses** in
offenses are then brought to the analyst's atte
- The Magistrate instructs the **Ariel Proxy Serv**
events and flows that triggered the creation of
- The Vulnerability Information Server (VIS) cre
ports to existing assets based on information
- The Anomaly Detection Engine (ADE) searches
anomalies, which are then used for offense ev

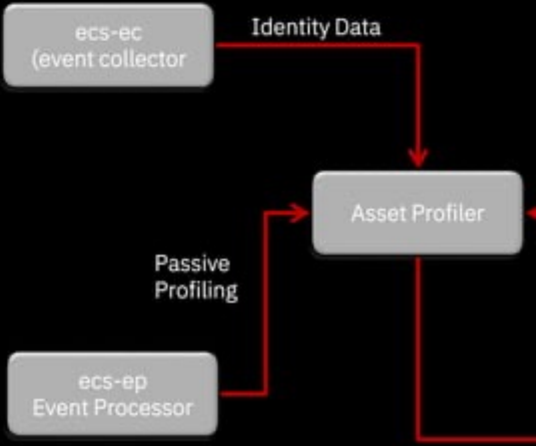
Ariel Components



Ariel Components



Asset and Vulnerability Flow



Gathering asset information

Active scanners

QRadar Vulnerability Manager scanner, Nessus, Nmap, Qualys, and others

Provide:

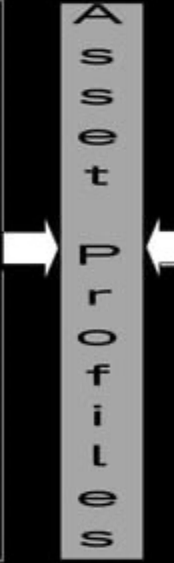
- List of hosts with risks and potential vulnerabilities
- IP and MAC addresses
- Open ports
- Services and versions
- Operating system

Pros

- Detailed host information
- Policy and compliance information

Cons

- Out of date quickly
- Full network scans can take weeks
- Active scanners cannot scan past firewalls
- User can hide from active scans



Asset Profiles

The Remainder

Hostcontext

“Owns” the host it is
processes and for ove

Reporting Executor

A stopwatch respons
when they should ru
runner

Report Runner

The process that actu
postgres, Ariel, etc.

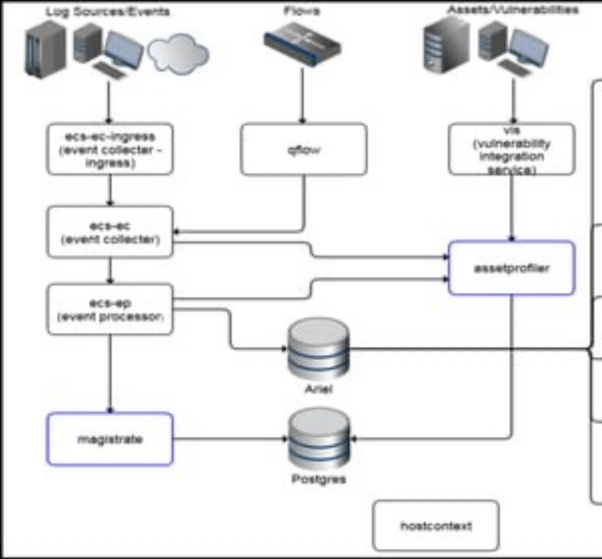
Tomcat

Process that drives o

Historical Correlation Processor

Process that is respo
specified search, runs
on QRadar time or de

QRadar Data Flow - Overall



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