

RAID: FMS

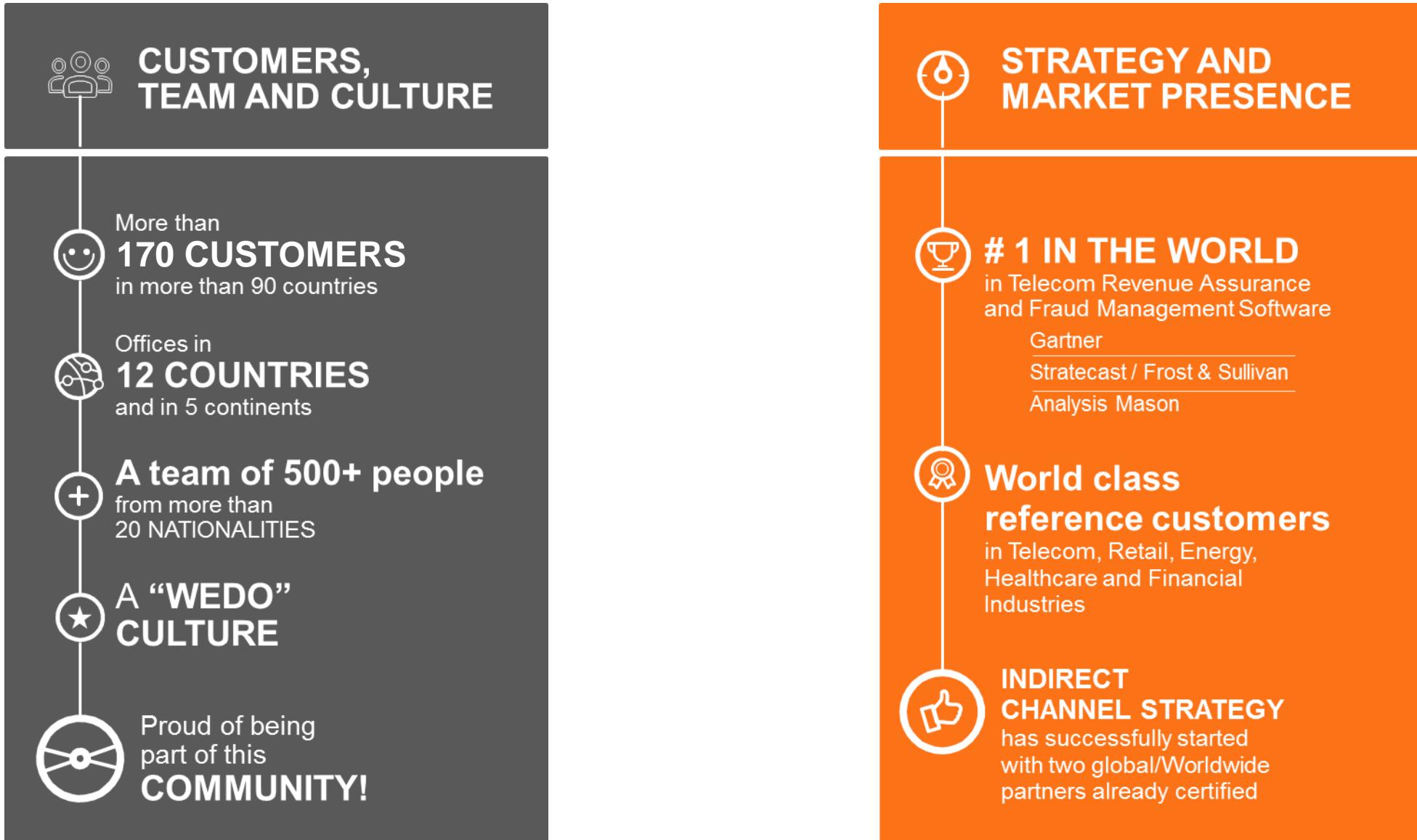
5 STEPS FOR
NEXT-GENERATION
FRAUD MANAGEMENT

25/07/2016



WEDO TECHNOLOGIES DATASHEET

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LINES OF BUSINESS

ENTERPRISE BUSINESS ASSURANCE (EBA)



Regulatory Compliance

Enterprise Risk Management

Internal Auditing

Management Control at corporate level and then at department level

Security

Fraud Management

Revenue Assurance

ENTERPRISE BUSINESS MANAGEMENT (EBM)



Roaming Management

Collections and Credit Control

Incentives Management

ENTERPRISE BUSINESS OPTIMIZATION (EBO)



Profitability

Customer Optimization

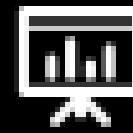
Churn

Social Value

Monetization

OUR OFFER

SOFTWARE HOUSE COMPLEMENTED WITH BUSINESS CONSULTING EXPERTISE



SOFTWARE

Products covering Enterprise Business Assurance in our target industries and niche Business Challenges in the Telecom industry.



MANAGED SERVICES

Our Managed Services addresses key issues that impact Business Assurance activities namely cost-reduction, skills acquisition, and processes improvement.



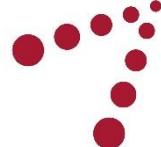
PROFESSIONAL SERVICES

WeDo Technologies provides Professional Services for our Enterprise Business Assurance Suite and Business Management Systems and Solutions.

WW LEADERS IN REVENUE ASSURANCE AND FRAUD MANAGEMENT



Gartner

 **analysys
mason**

Stratecast
A Division of KROST & SULLIVAN

RECOGNIZED MARKET LEADERS BY 3 INDEPENDENT INDUSTRY REPORTS

THE PROBLEM OF FRAUD

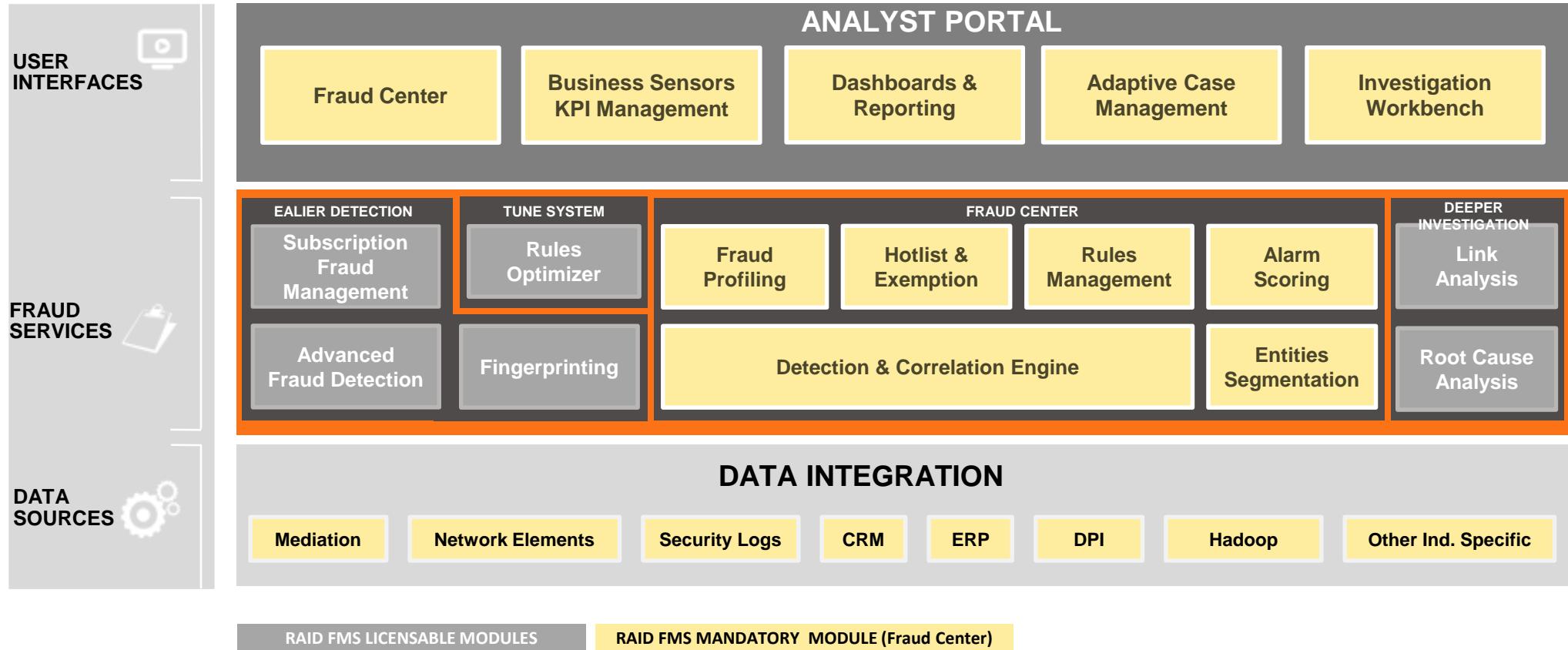
WHAT ARE THE IMPACTS?

- Fraudsters are everywhere and Service Providers are always desirable targets.
- Fraud amounts to **\$46.3 Billion** annually (2013 figures), which represents 2.09% of all telecom revenues.
- Next Generation Networks (NGN) have introduced, new and **more complex fraud scenarios**.
- The wider business scope of Communication Service Providers (CSP) has **multiplied the areas** where fraud can occur.
- **Black-box systems** do not adapt well to this new reality.



RAID:FMS

RAID FMS TELECOM ARCHITECTURE DIAGRAM



4 REASONS WHY YOU SHOULD USE RAID SOFTWARE FOR FRAUD MANAGEMENT

COST REDUCTION

Why have more than 10 different solutions to monitor your business performance — and for that matter, 10 different vendor licenses? With RAID, you get an entire monitoring toolset, all in one.

EMPOWERMENT

Because everything is fully integrated, each component goes a bit further:

- Business Sensors goes beyond simple graphics and reports.
- Monitoring Engines give you more than just rules.

Integration means everything is more powerful.

BEST 3 YEAR TCO IN THE MARKET

Why have to pay every time that:

- You need a new fraud rule or control?
- Deploy a new interface for a network element?
- Design a new fraud engine?

RAID:FMS gives you access to all of these features without additional license uplift.

RA&FM INTEGRATED

- Why develop the same rules for RA and FM?
- Why duplicate the database and storage?
- Why having different tools under the risk management area?

RAID FMS and RA integration provides a quicker access to information and case resolution while reduces costs.

WHO'S USING RAID:FMS SOFTWARE?



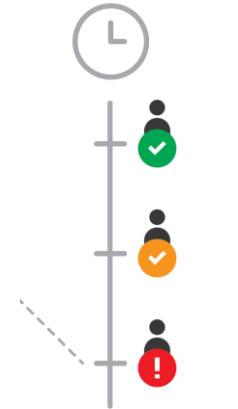
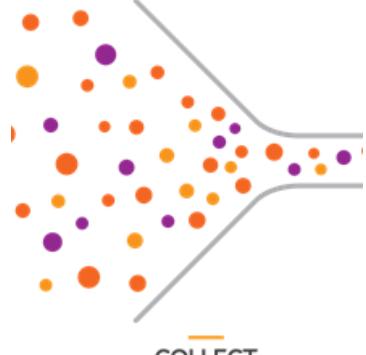
STC
الاتصالات السعودية



RAID:FMS

HOW MANY TOOLS DO YOU NEED?

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SAP NetWeaver
IBM
informatica

Pega Pegasystems Inc.
software AG
TIBCO®
Appian
sas

SAP Business Objects
ORACLE ENDECA
SAP Fiori
Qlik Q

sas
Qlik Q
+ableau

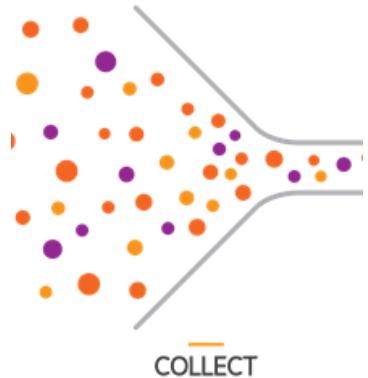
IBM COGNOS

i 2

Remedy
ca
IBM

RAID:FMS

ONE SINGLE TOOL THAT DELIVERS AN INTEGRATED APPROACH TO RA & FM



COLLECT



MONITOR



NOTIFY



DISCOVER



ACT

>>> RAID Telecom

SMART DATA STREAM
(ETL & CEP)

- UNIFIED VALIDATION ENGINE
- FRAUD MANAGEMENT ENGINES
- ADVANCED FRAUD DETECTION (AFD)

- EBA COCKPIT
- KPI DESIGNER
- BUSINESS SENSORS
- BALANCE SCORECARDS

- INVESTIGATION WORKBENCH
- SMART DATA BLUEPRINTS
- LINK ANALYSYS

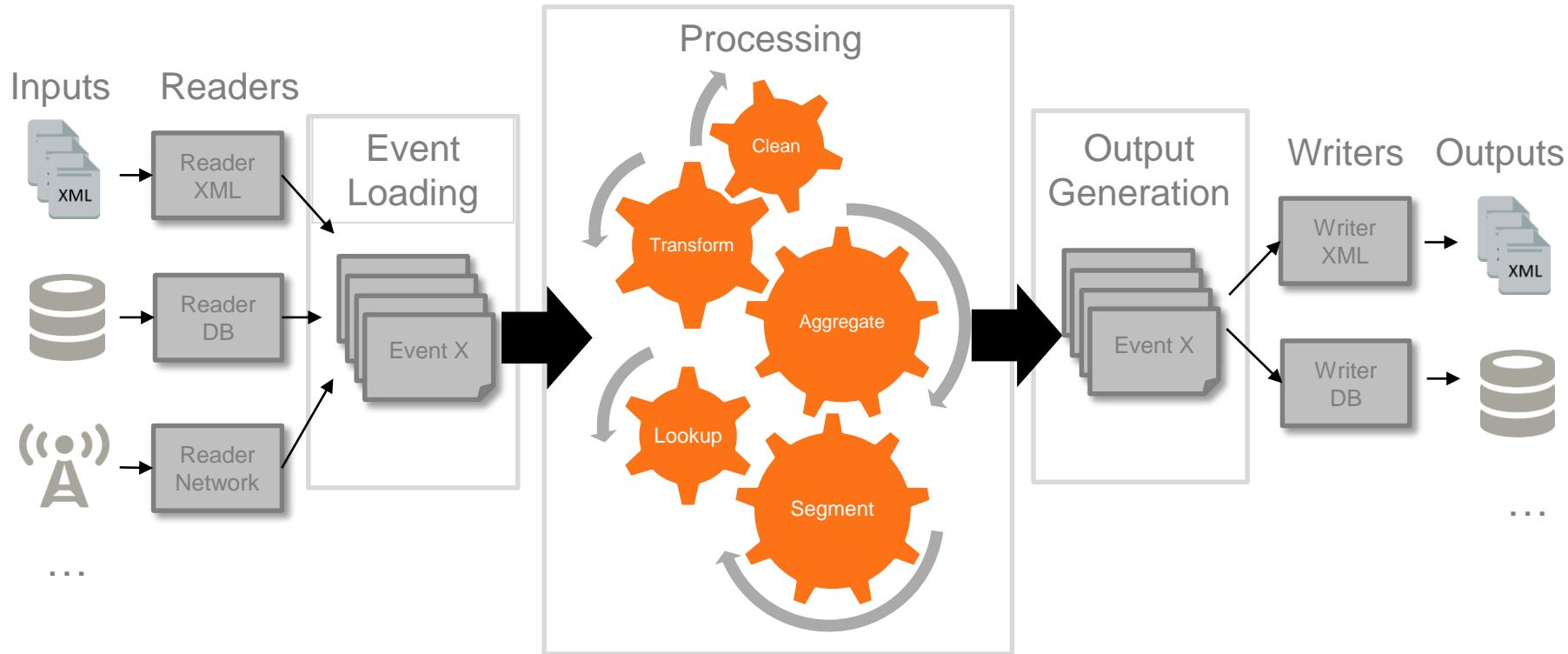
- ADAPTIVE CASE MANAGEMENT

WEB PORTAL

DASHBOARD & REPORTING

DATA INTEGRATION

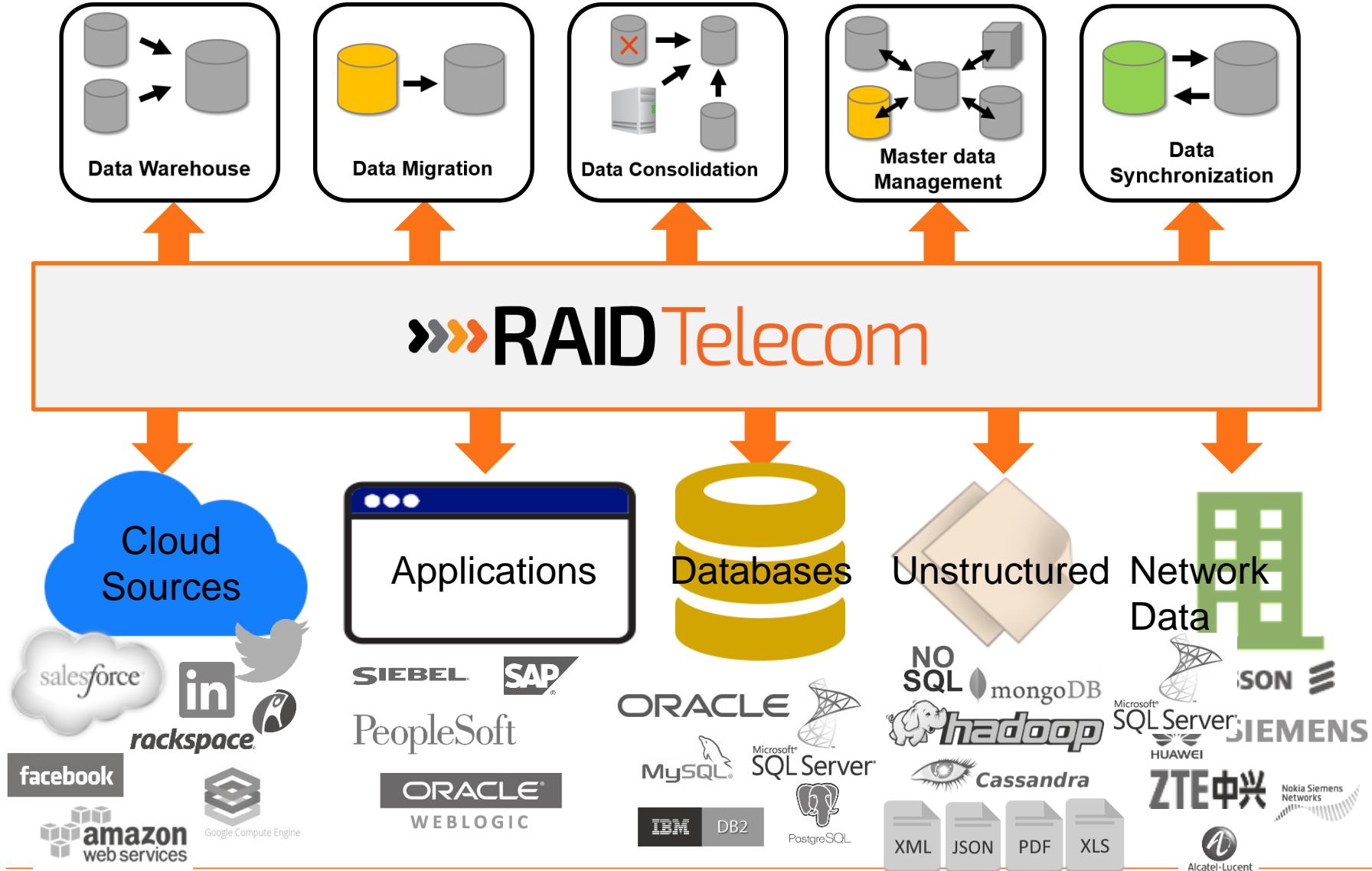
INTEGRATE ALL TYPES OF DATA ON DISTRIBUTED AND MAINFRAME PLATFORMS



**NO EXTRA LICENSING
FOR PROCESSING NEW DATA SOURCES**

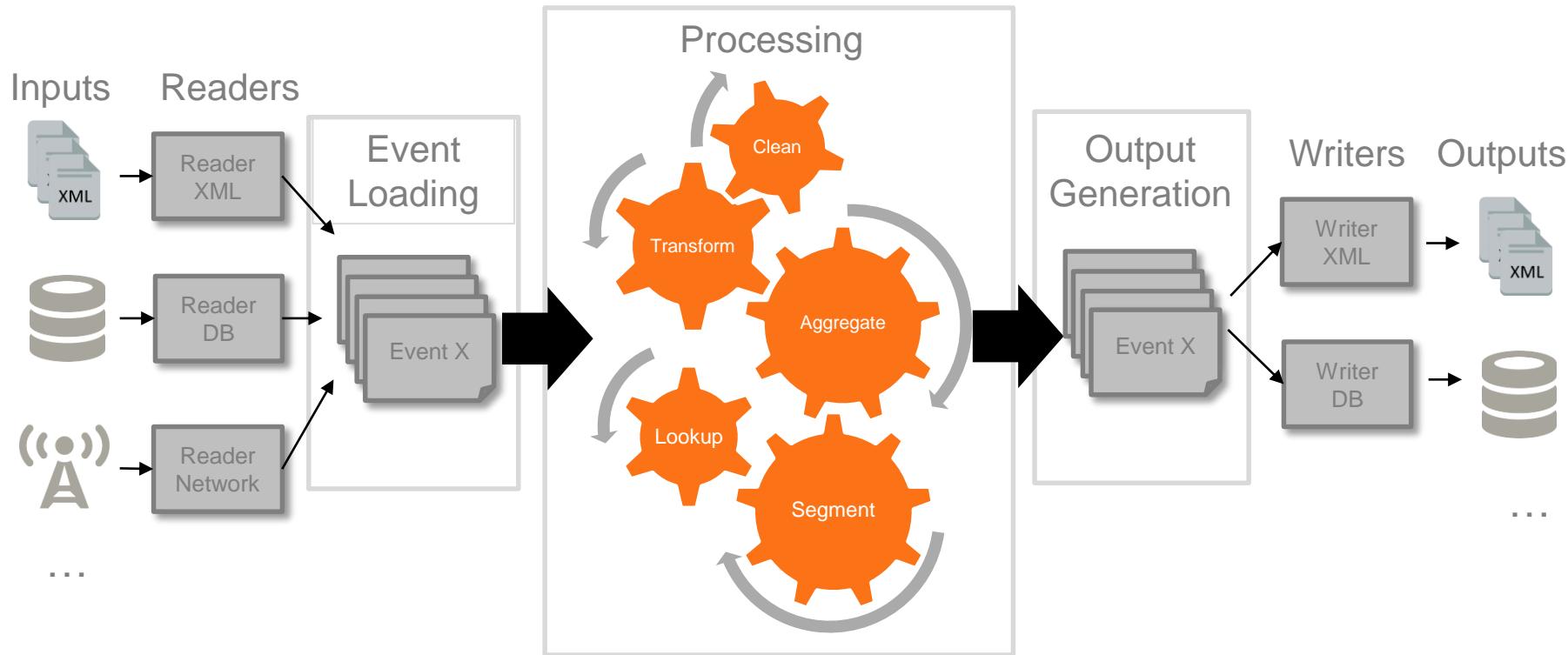
DATA INTEGRATION

RAID ETL AND CEP



DATA INTEGRATION

INTEGRATE ALL TYPES OF DATA ON DISTRIBUTED AND MAINFRAME PLATFORMS



**NO EXTRA LICENSING
FOR PROCESSING NEW DATA SOURCES**

RAID ETL AND CEP

PROVEN PERFORMANCE AND SCALABILITY

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+1.6 Billion
CDRs/PER DAY

CDRs processed in one
single customer using
RAID:FMS

Utilities



+8 Billion
CDRs/PER DAY

CDRs processed in one
single customer using
RAIDs ETL

TESTED IN SEVERAL INDUSTRIES

Retail



Telecom

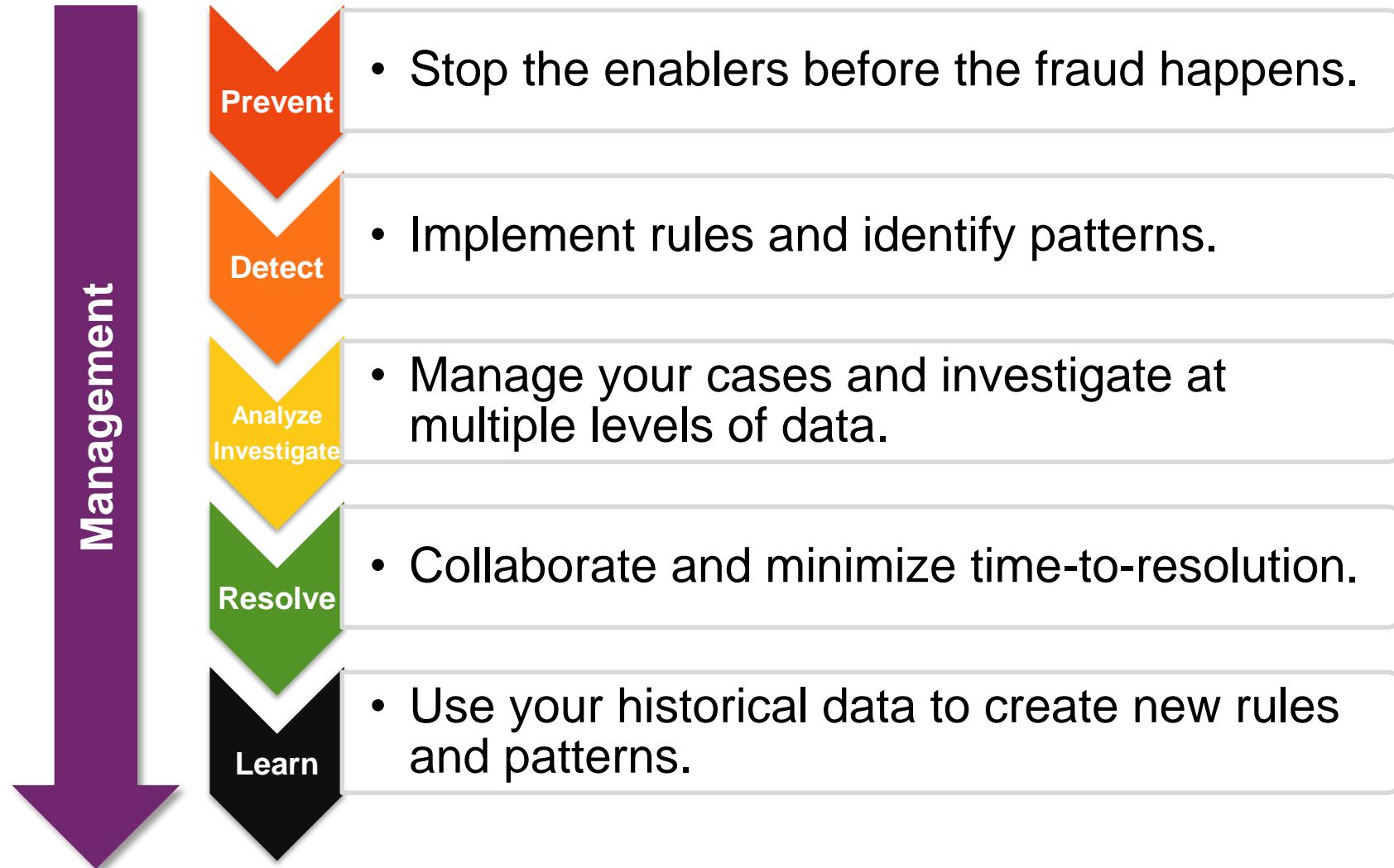


PREVENT

FIVE STEPS FOR
ADVANCED FRAUD
MANAGEMENT

FRAUD MANAGEMENT SYSTEM

5 STEPS FOR NEXT-GENERATION FRAUD MANAGEMENT



STOP THE ENABLERS ... BEFORE THEY BECOME THREATS



The Enabler

Allows the fraudster to commit fraud

The Threat

The fraud itself, with impact on your business

One example:

Subscription Fraud

How do we detect it?

- 👤 Identify **Multiple Activations** from the same subscriber
- ⌚ 3rd party **Hotlists**, of potential users that are referenced as fraudsters in other areas such as banking

International Revenue Shared Fraud

Premium Rate Service Fraud

Service reselling

Commissions Fraud

Others...

STOP THE ENABLERS ... WITH RAID FMS



Fraud Center

Available Engines

Engine Roles

Det_Holist_BNum_Mob

Name Rule ID Version State Created By Created Date Modified By Modified Date

HolistBNumberMob_RiskCountries_4H 262 1 Production adm 2014-05-13 adm 2014-05-13 Edit | Clone | Delete

HolistBNumberMob_Suspect_4H 263 1 Production adm 2014-05-13 adm 2014-05-13 Edit | Clone | Delete

HolistBNumberMob_Fraudster_4H 264 1 Production adm 2014-05-13 adm 2014-05-13 Edit | Clone | Delete

HolistBNumberMob_Fraudster_IMB... 172 1 Production adm 2014-05-13 adm 2014-05-13 Edit | Clone | Delete

PEX Hacking Mobile 291 1 Production adm 2014-05-13 adm 2014-05-13 Edit | Clone | Delete

HolistBNumberMob_PRS_4H 206 1 Production adm 2014-05-13 adm 2014-05-13 Edit | Clone | Delete

Traffic Pumping 241 1 Production adm 2014-05-13 adm 2014-05-13 Edit | Clone | Delete

Export Total Results fetched: 7

RAID FMS updates the IPRN numbers referenced in the multiple black lists incorporate within Fraud Management Solution



Fraud and Security Group High-Risk Ranges List

34902011032	349020	Spain	IRSF	USAAT	AT&T Mobility	UNITED STATES
44741810001	447418	United Kingdom	IRSF	MARM3	Wana Corporate S.A.	MOROCCO
4475890	447589	United Kingdom	IRSF	OMNGT	Oman Telecommunications	OMAN, SULTANATE OF
4478933	447893	United Kingdom	IRSF	DEUD1	Telekom Deutschland GmbH	GERMANY
85021811111	8502181	Korea (Rep.)	IRSF	IRSF	KT Corp	KOREA, REPUBLIC OF
231332512566	2313325	Liberia				
18672925445	18672925	Canada				
5372640477	537264	Cuba				
21698090001	2169809	Tunisia				
5331997550	533199	Cuba				
34902917739	349029	Spain				
23677323278	2367732	Central African Republic				
37090203068	3709020	Lithuania				
448713050236	448713	United Kingdom				
4475597	447559	United Kingdom				
252836008	2528360	Somalia				
37122780721	3712278	Latvia				
24105546802	2410554	Gabon				
3712096001	3712096	Latvia				
37282200	3728220	Estonia				
12845415072	12845415	British Virgin Islands				
5347252010	534725	Cuba				

Using this Data

The numbers and ranges listed here have been reported by operators that have seen fraudulent traffic to these destinations from their networks. The GSMA Fraud and Security Group recommends that any unusual or high usage to these destinations is investigated.

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Some IRSF traffic terminates on number ranges that have been legitimately allocated to genuine networks and customers worldwide who are unaware that the numbers have been hijacked and used for fraud. If the official assignee for number ranges in the high risk range list informs GSMA that those numbers or ranges have been hijacked, these entries are moved to the *Hijacking Confirmed* worksheet. Before blocking traffic to hijacked (or any) number ranges, operators should first compare the fraud risk against the potential disruption to legitimate customers, traffic and revenue in both the originating and the intended terminating networks.

STOP THE ENABLERS ... WITH RAID FMS



The screenshot shows a software application window titled "Subscription Fraud Manager". The left sidebar lists "AVAILABLE CONTENTS" including "Fraud Rules", "Fraud Center", "Fraud Rule Optimizer Analysis", "Subscription Fraud Manager" (which is selected), "AFO Model Manager", and "AFO Scheduler Manager". The main area displays "Subscription Fraud Models" with two entries: "Baseline Model 1" (Optimal model values for specific set of attributes) and "Personal Info Model" (Model for personal info). A "Filters" section allows searching by "Model Name". Below this is a "Tools" section with a "VAT Validation" button. At the bottom, there's an "EXPORT" section, a "Total Results Retrieved: 2" message, and a timestamp "Last Update: 2014-07-24 13:10:29". The "Blacklist Manager" section shows a table for the "Personal Info Model" with three rows of data:

HasQuality	SF_CUSTOMER_ID	SF_TAX_NUMBER	SF_NAME	SF_FIXED_PHONE	SF_ADDRESS	SF_BIRTHDATE	SF_POSTAL_CODE	SF_ACTIVATION_DATE	SF_ID_DOC_NUMBER	Create	Delete Selected
<input type="checkbox"/>	145916799	318131136	JIMMIE REYNOLDSHICKMAN	1212047312	Meadow Third Street, 44 V Street	19870711	1110	9443120	<input type="button" value="Edit"/>	<input type="button" value="Delete"/>	
<input type="checkbox"/>	145916624	215001135	ANDREW MORTON BENTON	1212042849	South Park Street, 180 T Street	19440815	1360	5573258	<input type="button" value="Edit"/>	<input type="button" value="Delete"/>	
<input type="checkbox"/>	145916846	216250926	FRANKLIN PITTS JONES	1212000345	Hinton Pine Street, 190 V Street	19503008	1110	2468516	<input type="button" value="Edit"/>	<input type="button" value="Delete"/>	

DETECT

FIVE STEPS FOR
ADVANCED FRAUD
MANAGEMENT



Fraud detection is a core part RAID and for that the product includes a set of component that allow non-programmers to add or change **business** logic validation according with it's **business** policy or procedure. These components are:

RAID FMS ENGINES (RULE MANAGEMENT)

ADVANCED FRAUD DETECTION (PREDICTIVE ANALYTICS)

RULE BASED SYSTEM WIDELY USED BY CSPs



RULES ARE **ACCURATE** AND **HIGHLY PERFORMANCE**, COVERING KNOWN FRAUD TYPES AS WELL NEW FRAUD TYPES



Rules (Known fraud scenarios)

- Target specific, well identified types of fraud
- Rely on “common sense” knowledge of how fraud works

RAID:FMS RULES

COMPREHENSIVE SET OF RULES FOR DIFFERENT FRAUD TYPES

The screenshot displays the RAID:FMS rule editor interface. The top window is titled "Edit rule" and shows a rule configuration for "Bypass_HighUsage". The rule has a Rule Id of 151, Version 1, and is set to Active. It is named "Data.DataVolume.4H" and has a score of 1. The segmentation for this rule includes "Contract - All - All", "Age - All - All", and "Risk - All - All". The bottom window is titled "Rule: Data.DataVolume.4H" and shows the detailed rule definition: $[[\text{DATA.Total Upload.4H}] + [\text{DATA.Total Download.4H}]] \geq 512000000$. A dropdown menu for "DATA.Total Download.4H" is open, listing various metrics such as DATA.Calls Dispersion.4H, DATA.Calls Duration.4H, DATA.ShortCalls.4H, DATA.Total Count In.4H, DATA.Total Count Out Int.4H, DATA.Total Count Out OffNet.4H, DATA.Total Count Out OnNet.4H, DATA.Total Count Out Out.4H, DATA.Total Duration.4H, DATA.Total Duration In.4H, DATA.Total Duration Out Int.4H, DATA.Total Duration Out OffNet.4H, DATA.Total Duration Out OnNet.4H, DATA.Total Duration Out Out.4H, and DATA.Total Upload.4H.



DEDICATED GROUPS OF RULES FOR

- SUBSCRIPTION FRAUD
- PBX HACKING
- BYPASS FRAUD
- DEALER FRAUD

DEDICATED GROUPS OF RULES FOR

- MOBILE
- CABLE
- MVNO'S
- IOT
- VOLTE

DETECT FRAUD



Business Fraud

International Revenue Share Fraud (IRSF)
Premium Rate /Audiotext Service Fraud (PRS)
Roaming Fraud
Interconnect Bypass Fraud
Wangiri
etc



Subscription / Payment Fraud

Call Selling
Direct Debit Fraud
etc.



Prepaid Fraud

Manual Recharges
Duplicate Voucher Printing
Voucher Theft
Voucher Forgery
PIN Theft
etc.

RAID: FMS PROVIDES RULES TO DETECT DIFFERENT FRAUD TYPES



Distribution Fraud

Commissions Fraud
False Agent / Remote Activation Fraud
etc.

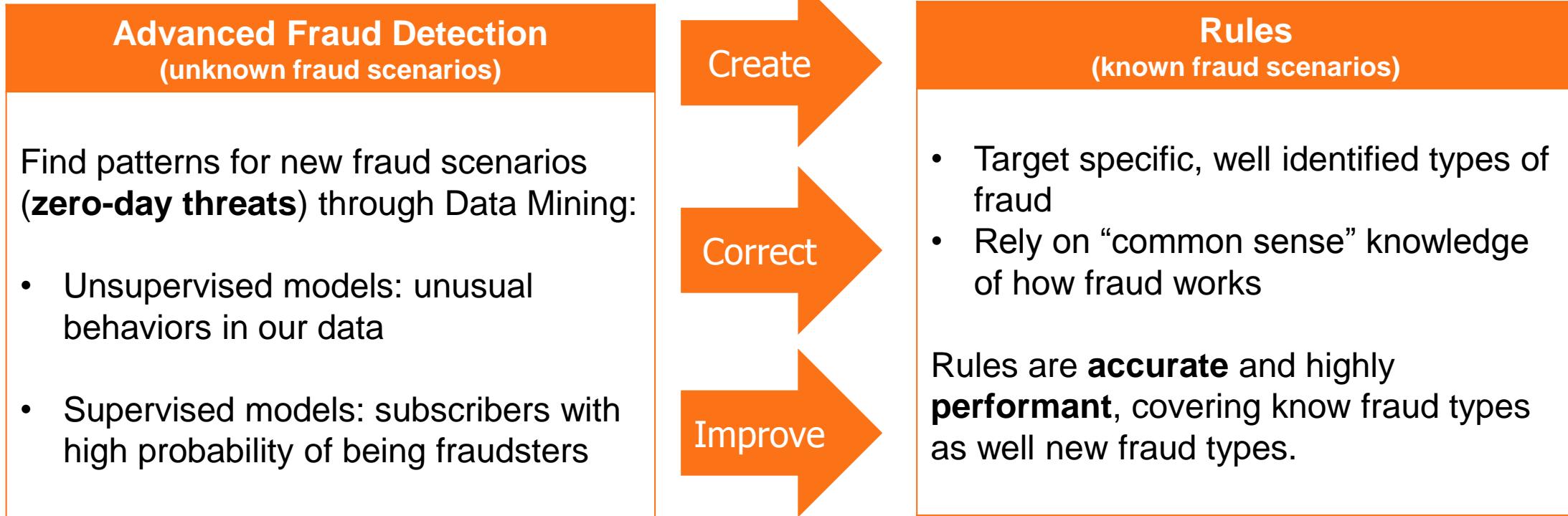


Technical Fraud

Spamming (SMS & IP Services)
IMEI Reprogramming
Call Forwarding Fraud
Cloning Fraud
etc.

NEXT GENERATION FMS

... TARGETING TYPES OF FRAUD



HYBRID FM SYSTEM

RAID: FMS MANAGING RULES

Full integration with the **Rules Manager** enabling rules management by end users

The screenshot shows the RAID FMS Fraud Rules interface. On the left is a navigation sidebar with various icons and links related to fraud management. The main area is divided into two sections: "Available Engines" and "Engine Rules".

Available Engines: A tree view showing categories like Detection, Correlation, and others. Under "Detection", there are sub-categories such as Usage, Roaming, xDR's Evaluation, Recharges, Hotlists, IMSI/IMEI Stuffing, Cloning, Fingerprinting, Profiling, Landline, and WUG Session 1.

Engine Rules: A grid view showing rules for the "Bypass_HighUsage" engine. The columns are: Name, Rule Id, Version, State, Created By, Created Date, Modified By, and Modified Date. The rows list various rules like AutoDialer, Bypass.4H, Bypass.4H, etc., along with their details.

A context menu is open over the first row of the grid, listing options: Debug, Deactivate, Test History, Test Now (with a hand cursor), Create Test Version, Statistics, and Audit.

Name	Rule Id	Version	State	Created By	Created Date	Modified By	Modified Date
AutoDialer	197	1	Produ...	adm	2015-05-13	RAIDFMS_ADM	2015-05-15
Bypass.4H	154	2	Test	adm	2015-05-18	adm	2015-05-16
Bypass.4H	154	1	Produ...	adm	2015-05-13	RAIDFMS_ADM	2015-05-15
Bypass.Regular.4H	186	1	Produ...	adm	2015-05-13	RAIDFMS_ADM	2015-05-15
Called_NR_Dispersio...	182	1	Produ...	adm	2015-05-13	RAIDFMS_ADM	2015-05-15
Data.DataVolume.4H	151	2	Test	adm	2015-01-16	RAIDFMS_ADM	2015-05-15
Data.DataVolume.4H	151	1	Produ...	adm	2015-05-13	RAIDFMS_ADM	2015-05-15
Data_volume.4H	185	1	Produ...	adm	2015-05-13	RAIDFMS_ADM	2015-05-15
First Rule Friday	379 946	1	Produ...	richard	2015-05-22	richard	2015-05-22
High_Usage.Voice.4H	156	1	Produ...	adm	2015-05-13	RAIDFMS_ADM	2015-05-15
New Rule WUG	379 904	1	Produ...	richard	2015-05-21	richard	2015-05-21
SMSSPAM.4H	152	1	Produ...	adm	2015-05-13	richard	2015-05-17

RAID FRAUD MANAGEMENT ENGINES

RAID SUBSCRIPTION FRAUD ENGINE

Identity check and scoring

The screenshot shows a software interface for managing a 'Subscription Fraud Model'. It includes sections for 'Attributes' (Unique Key: SF_CUSTOMER_ID, Activation Date: SF_ACTIVATION_DATE), 'Matching Attributes' (SF_NAME, SF_TAX_NUMBER, SF_FIXED_PHONE, SF_ADDRESS, SF_BIRTHDATE, SF_POSTAL_CODE, SF_ID_DOC_NUMBER), and 'Weights for Matching' (e.g., SF_NAME weight 30, SF_TAX_NUMBER weight 60). A large fingerprint icon is overlaid on the left side of the interface.

RAID FINGERPRINTING ENGINE

Identity check and scoring



These engines can include information from internal and 3rd party entities

BLACKLISTS

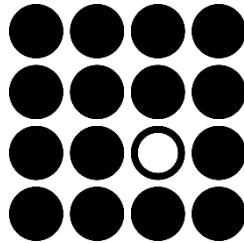
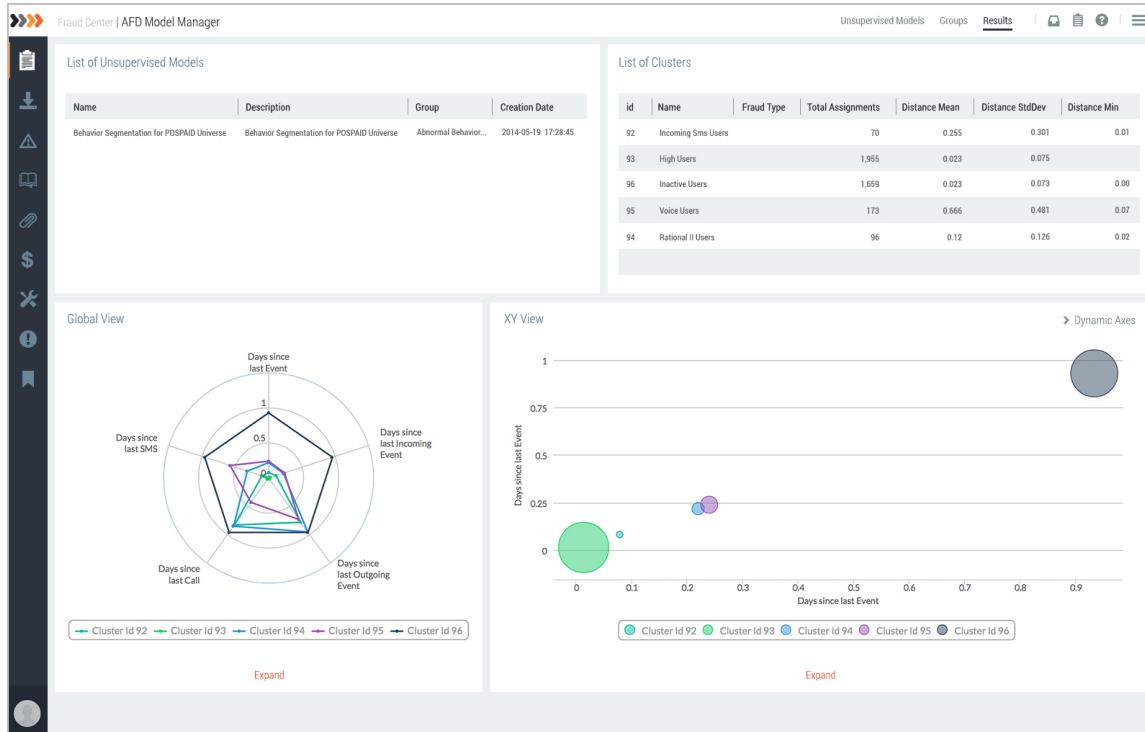


WHITELISTS

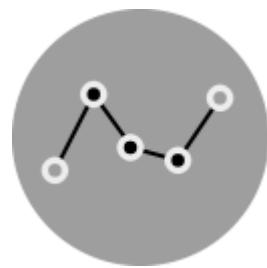


ADVANCED FRAUD DETECTION

DETECTION OF UNKNOWN FRAUD PATTERNS.



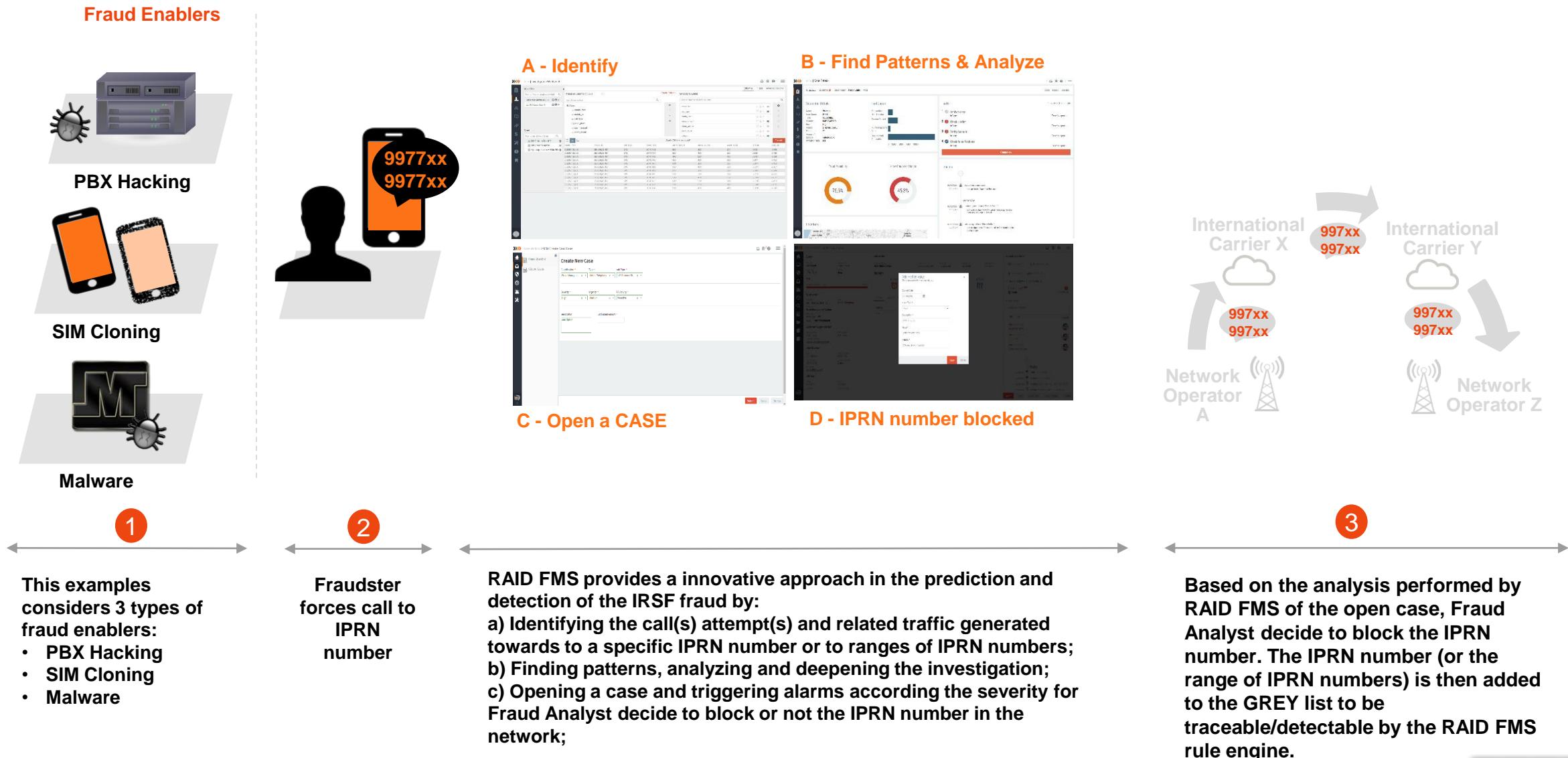
UNSUPERVISED MODELS



SUPERVISED MODELS

THE HYBRID APPROACH

PUTTING IT INTO PRACTICE



ANALYZE

FIVE STEPS FOR
ADVANCED FRAUD
MANAGEMENT

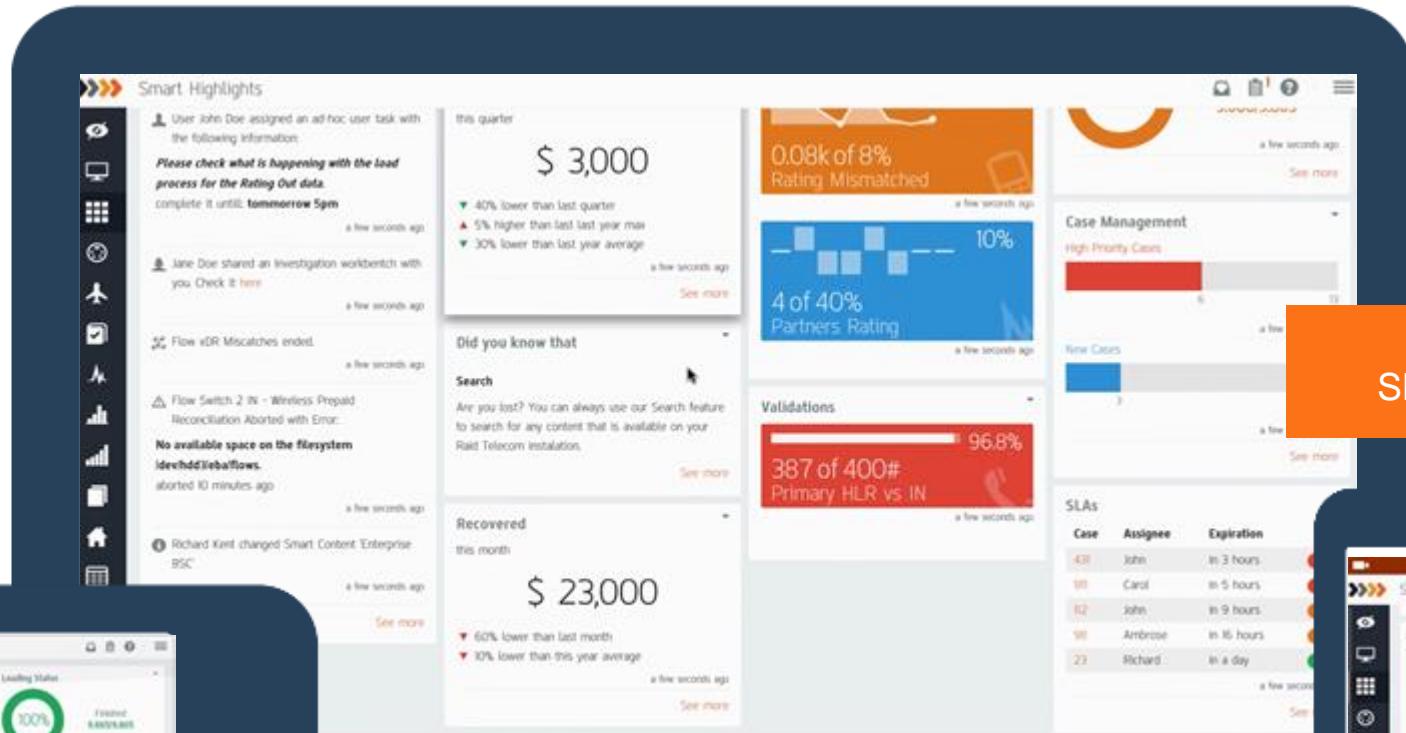
ANALYZE AND INVESTIGATE WHEN YOU NEED, WHERE YOU WANT

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ON YOUR TABLET



ON YOUR DESKTOP



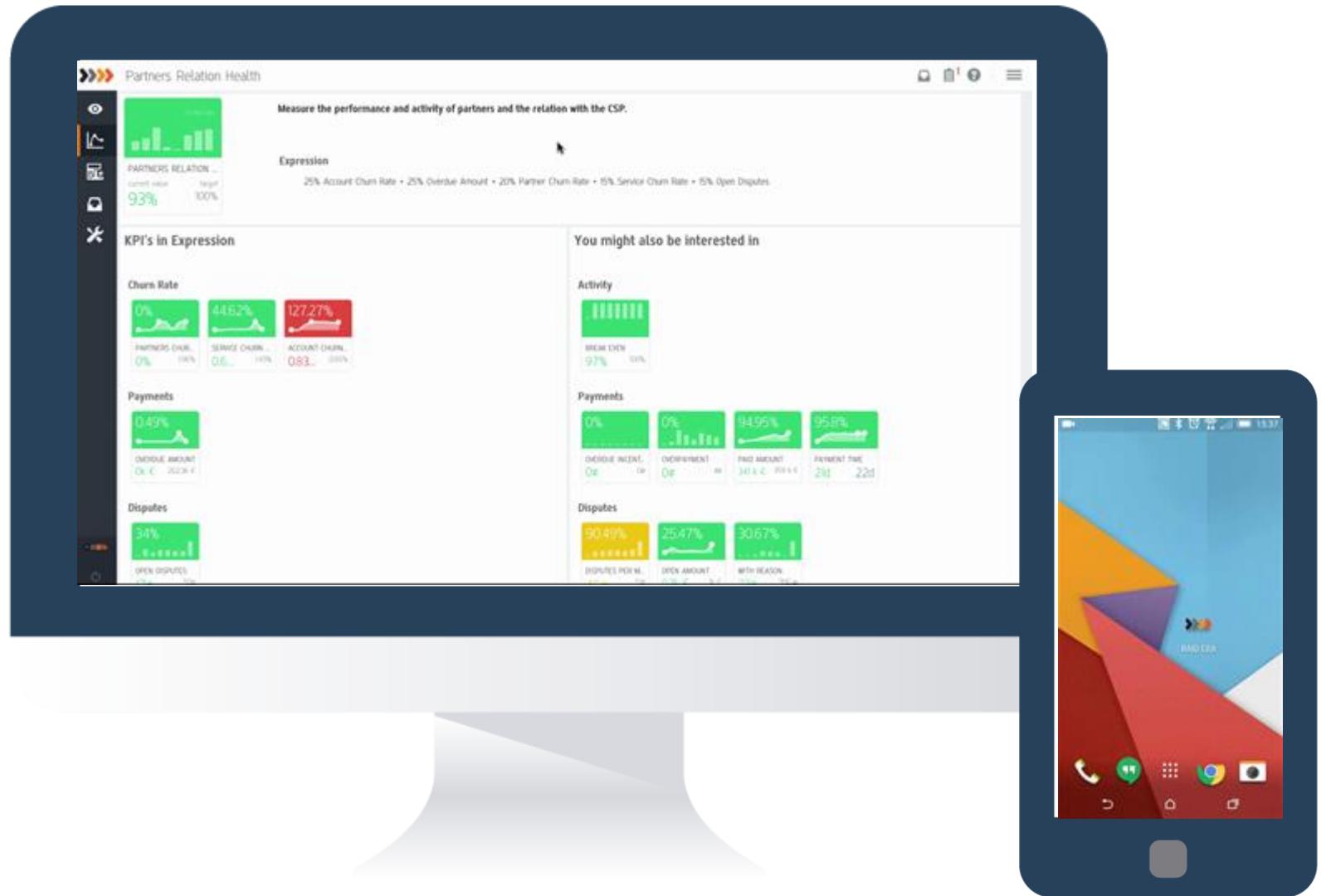
ON YOUR
SMARTPHONE



DASHBOARD AND REPORTING

ONE TOOL - DIFFERENT VISUALIZATION/INVESTIGATION PROFILES!

- Intuitive user interface for **greater effectiveness**
- Infographics, smart highlights, extensive tips, and calls to attention for **faster action**
- User friendly color schemes, font sizing and subtle area delimiters for **higher comfort**
- **All on the web** for a seamless integration of usage and configuration and **Cloud Readiness**



ADAPTIVE CASE MANAGEMENT

REDUCE TIME TO RESOLUTION (TTR)

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The screenshot displays a web-based Adaptive Case Management (ACM) application. The main title is "Inbox | Analyse Case to delete". The top navigation bar includes icons for back, forward, search, and help, along with a menu icon. Applied filters show "Id (Case - ACM) = 137728" and a "Remove All" button.

The left sidebar features a vertical toolbar with icons for: Home, Back, Forward, Filter, Lock, and a wrench (Tools). Below the toolbar is a user profile picture.

The main content area is divided into several sections:

- Case Details:** Summary: Vivamus Nisi Institute, Amount: 64,769, 6 payments without PO, Severity: High, Payment before: Under Analysis, Invoice Due Date: detected on Partners, Incentives operational accuracy, Created By: rachel, Created At: 2015-09-28 12:37:01.
- Analyse Case:** Fields for Recovered Amount, Prevented Amount, and Loss Amount, each with a dropdown arrow.
- Resolution:** A text input field.
- Comments:** A section with a placeholder "Place your comment" and a comment entry.
- Tasks:** A list of three tasks:
 1. Can you please check if this validation is OK? (Incomplete, due in 20 minutes, assigned to Sean Hye)
 2. Vivamus last CRM integration OK? (Incomplete, due in 21 minutes, assigned to George Cooper)
 3. Anything suspicious regarding Vivamus past? (Incomplete, due in 32 minutes, assigned to George Cooper)
- Last 10 minutes:** A timeline showing recent activity:
 - 4:40 PM: raphael added Ad-Hoc task Anything suspicious regarding Vivamus past?
 - 4:40 PM: raphael assigned Ad-Hoc task Anything suspicious regarding Vivamus past? to george
 - 4:39 PM: raphael added Ad-Hoc task Vivamus last CRM integration OK?

At the bottom right are "Submit" and "Dismiss" buttons.

ADAPTIVE CASE MANAGEMENT

REDUCE TIME TO RESOLUTION (TTR)

The screenshot displays a user interface for Adaptive Case Management, featuring three main components:

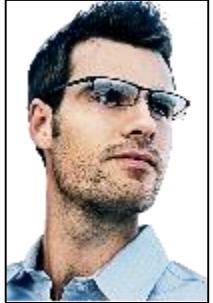
- Comments:** A sidebar titled "Comments" shows a list of messages. One message from "Relevant information" contains contact details: "Phones: +003 (312) 311-7443" and "Emails: johnjs@mail.com". Another message from "mike" discusses RAID Predictive Engine analysis. A third message from "layna" is partially visible. A callout box labeled "Comments that are more than just text" points to this sidebar.
- Tasks:** A section titled "Tasks (Complete: 0 Incomplete: 3)" lists three tasks:
 1. Analyze Case (due in 29 minutes, assigned to Layna Fischer)
 2. Check Hotlist (30 minutes ago, assigned to Tom Koulopoulos)
 3. Verify Account (in 36 minutes, assigned to Mike Cohn)A callout box labeled "Comprehensive Todo List" points to this section, which includes a "Create New" button.
- Email Integration:** A window titled "MESSAGE" shows an email message being composed. The recipient is "Carlos Duarte Marques; Sofia Fidalgo Florentino;" and the subject is "Issue found regarding invoices #31221". The message body contains text about finding the cause of a problem with invoices. A callout box labeled "Attach emails to case automatically" points to this window.

ANALYZE AND INVESTIGATE

CHECK CASE DETAILS



Fraud Analyst

A screenshot of a tablet displaying the RAID Telecom Fraud Analyst interface. The interface includes:

- Inbox | Case Details:** Shows case ID 280286, Severity High, Classification Timeout Exploit, and #Hits 1.
- Subscriber Details:** Shows Name: Zisireher, User Domain: SUBS, Type: SUBSCRIBE, Country: MADAGASCAR, Risk: High, Address: 2142 ANDROA..., Segment: 2.1, Account #: 54848451548, and SEGMENT RISK: 3.3.
- Past Cases:** A bar chart showing Transactions Near Thresholds (~2500), Timeout Expired (~5000), Multitransactions (~1000), Circle (~1000), and Unauthorized Transactions (~10000).
- Fraud Probability:** A donut chart showing 75,6%.
- Know Fraudster Chance:** A donut chart showing 45,3%.
- Locations:** A map showing locations like Monte Real, Coucinheira, Serra, and Carrelo Branco.
- Tasks:** A list of tasks assigned to Tom Koulopoulos:
 - Analyse case in 3 days
 - Check Hotlist in 3 days
 - Verify Account in 4 days
 - Check false Positives in 5 daysA "Create New" button is at the bottom.
- Timeline:** A log of events:
 - 10/10/2014 11:57 AM: accounting opened case, adm performed "open" on the case
 - yesterday: marketing created task "Review Events"
 - 10/10/2014 11:57 AM: adm created task "Review Events" and assigned it to Event Analysts due to 1 week
 - 10/10/2014 11:57 AM: sales assigned task "Check Hotlist"
 - 10/10/2014 11:57 AM: adm assigned task "Check Hotlist" to Tom Koulopoulos due to 3 days

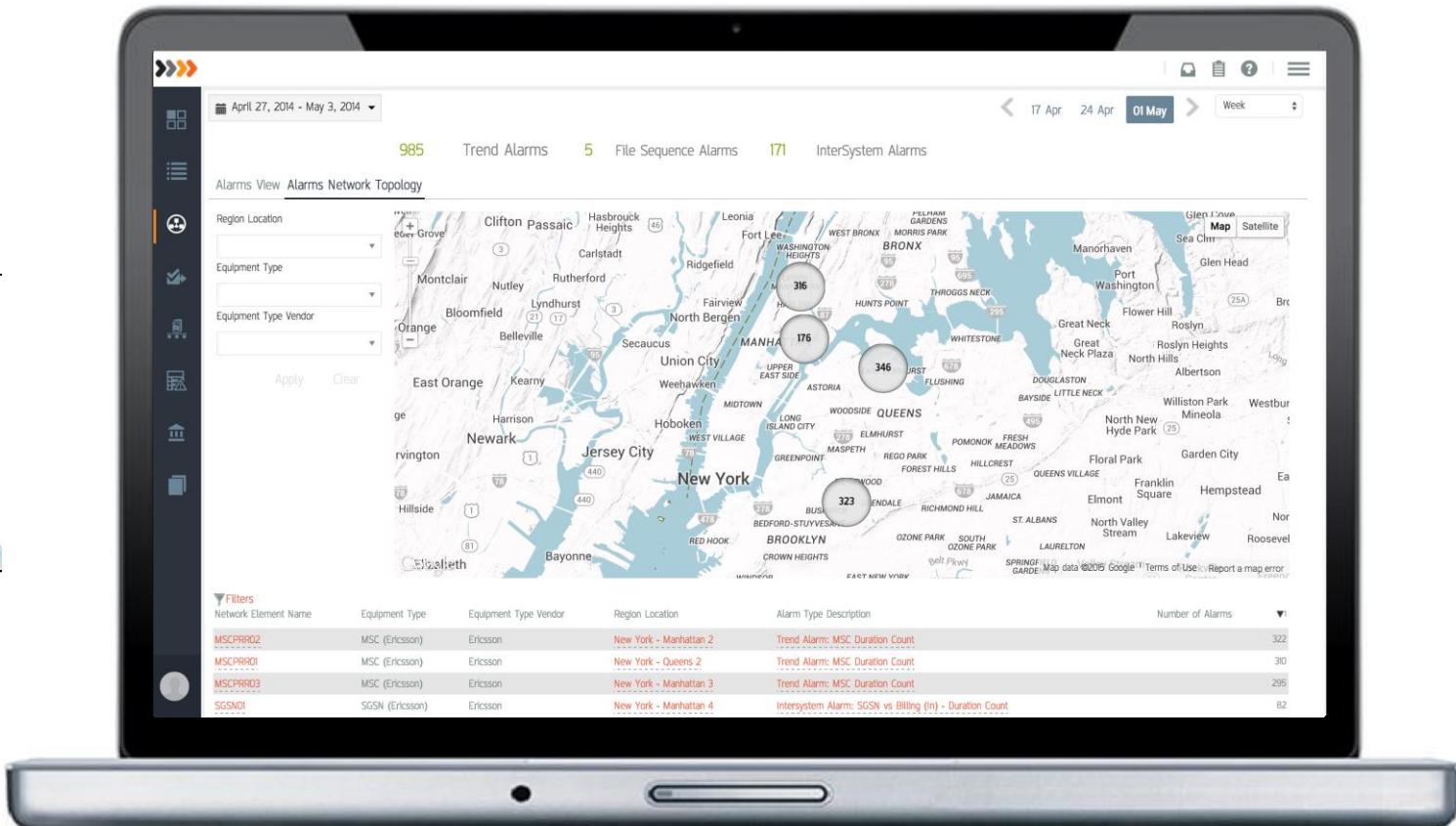
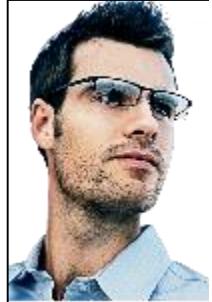
CASE HANDLING

- All the required information is available in a structured way to assist the analyst in decision making

ANALYZE AND INVESTIGATE VISUALIZE YOUR DATA



Fraud Analyst

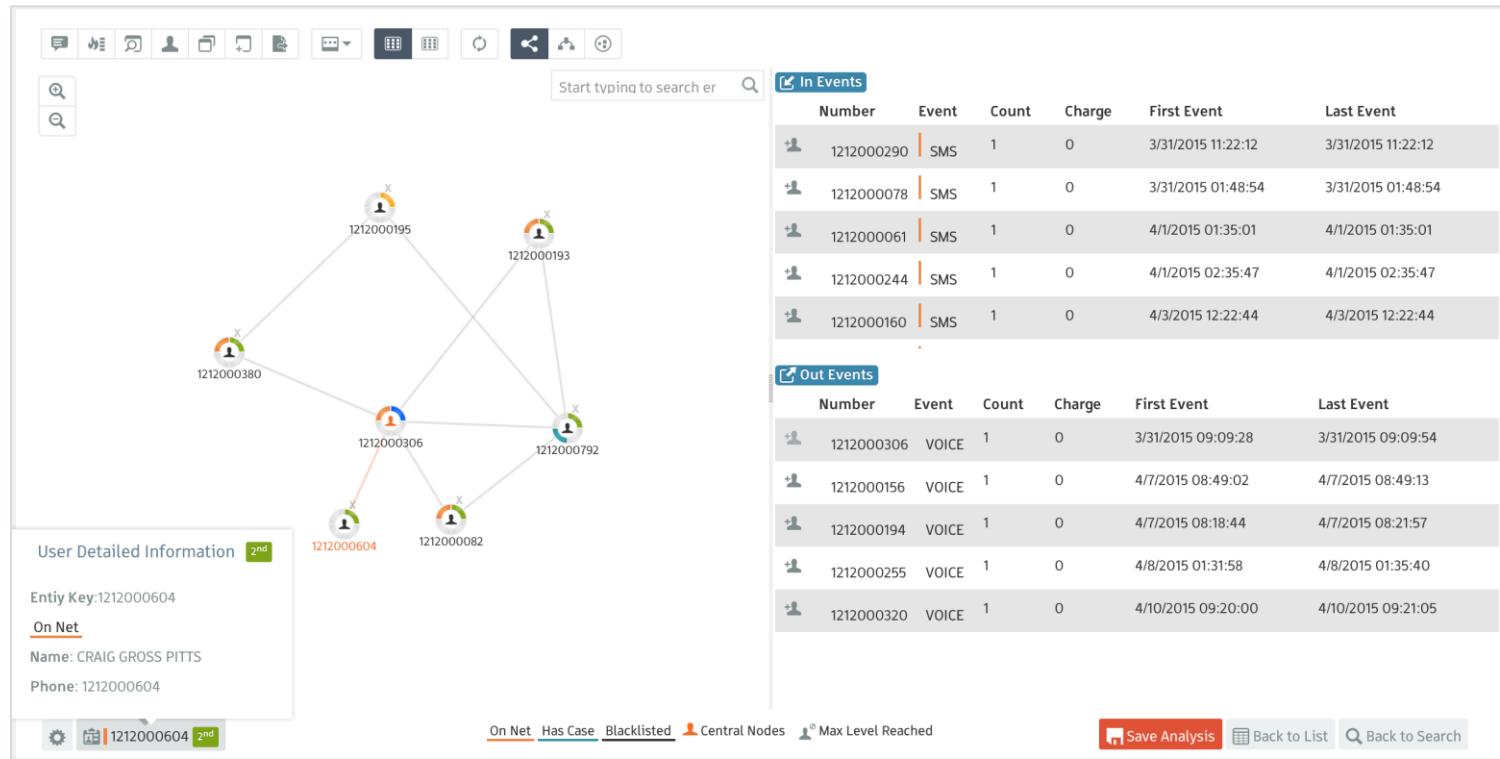


GEOLOCATION MAPS

- Provide a geographical representation that correlates to the analyzed case.
- Visual analysis of fraud events, velocity data, etc..

ANALYZE AND INVESTIGATE

LINK ANALYSIS



FULLY INTEGRATED WITH

- ETL (DATA LOADING)
- DASHBOARDS
- CASE MANAGEMENT

RESOLVE

FIVE STEPS FOR
ADVANCED FRAUD
MANAGEMENT



RESOLVE TAKE ACTION RIGHT FROM THE TOOL

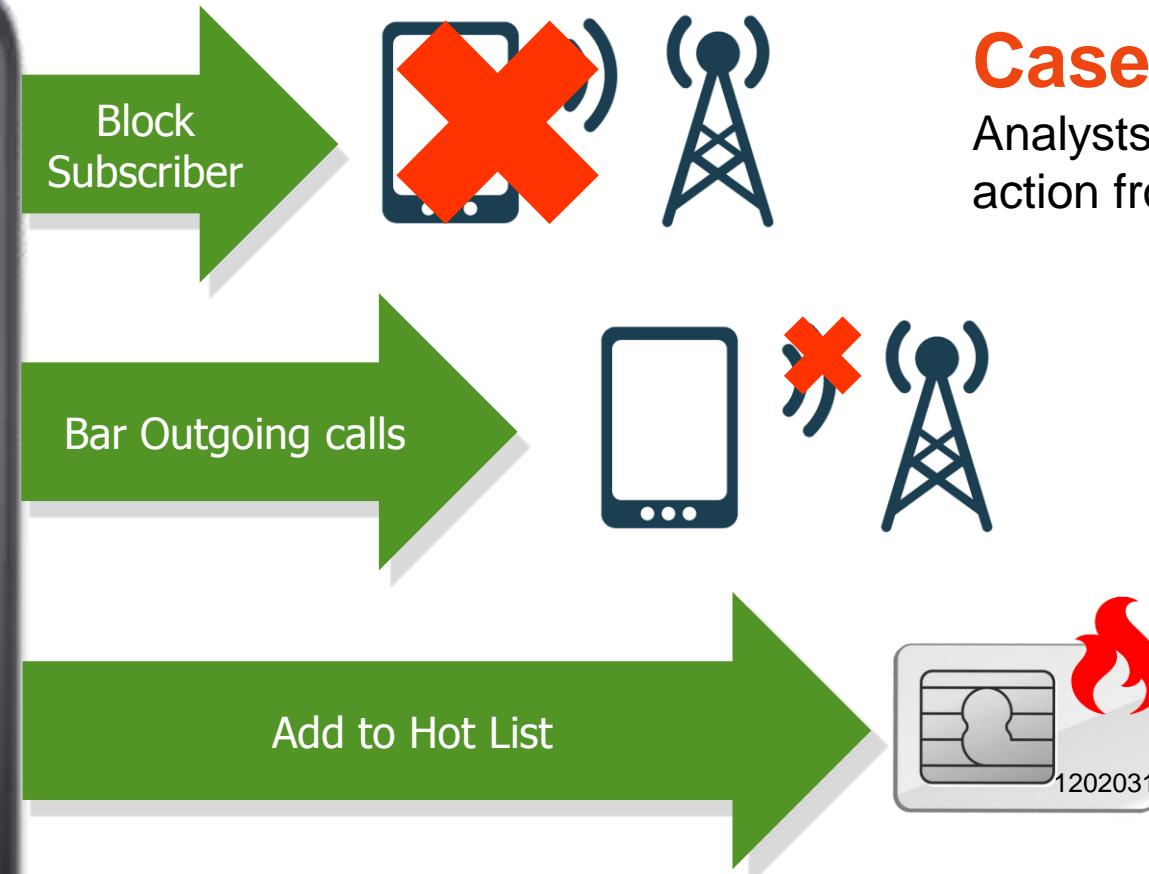


The screenshot shows a software interface for managing a case. At the top, it displays the SLA Expiration Date as 2014-05-14. Below this, there's a section for Impact with Revenue Loss listed under Impact and Proactive under Activity. The Segmentation section includes Age Segment (Older 1 Year), Contract Segment (Prepaid Mass Market), and Risk Segment (Risk Level 1). At the bottom, there are several buttons: Link Analysis, Add To Hotlist, Block subscriber, and Bar outgoing calls. The bottom navigation bar includes tabs for This Task, Other Tasks, Private, and Public.



Case Resolution

Analysts able to order a course of action from the fraud management tool



RESOLVE

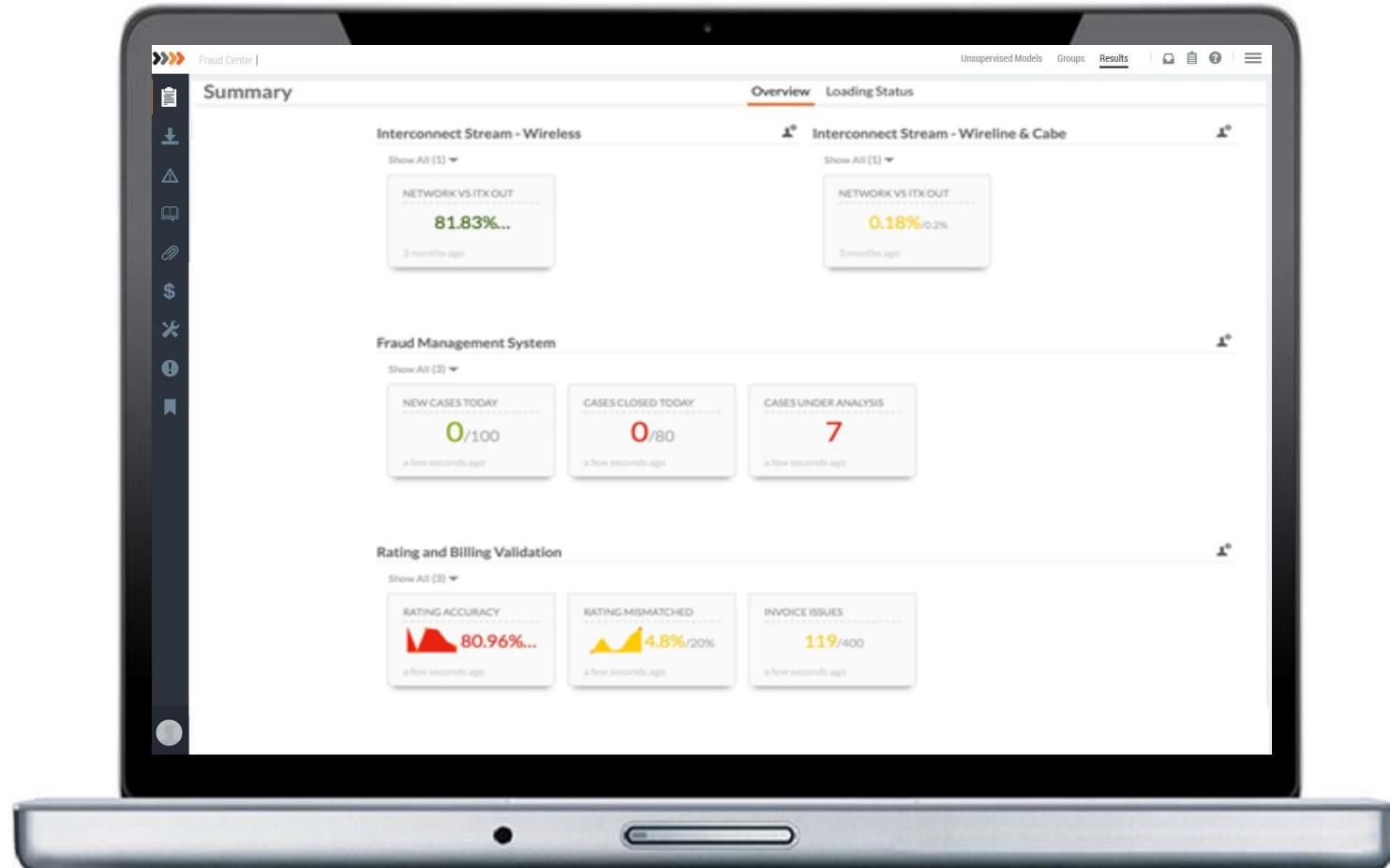
KEEP AN EYE ON FRAUD CASES AND IMPACT



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**MANAGERS MONITOR FRAUD
CASE PROGRESSION**

**AS FRAUD IS ANALYZED AND
CASES EVOLVE,
MANAGEMENT METRICS ARE
UPDATED**



**Fraud
Manager**



RESOLVE MINIMIZE YOUR TIME-TO-RESOLUTION



TO SERIOUSLY PROTECT CSPS FROM FRAUD, A FMS MUST ELIMINATE DELAYS IN THE DETECTION AND THE INVESTIGATION OF POTENTIAL FRAUD ACTIVITY.

Five Areas where a FMS impacts Time-to-resolutions

1. Accelerating detection of potential fraud threats.
2. Eliminating false positives and improving accuracy.
3. Minimizing the time overhead while exchanging information with internal / external teams involved in case resolution, outside the fraud department.
4. Prioritizing fraud cases in queues based on specified risk.
5. Providing the tools for fraud teams to analyze and investigate a fraud case as soon as it is created.

RESOLVE ONE TOOL TO RULE THEM ALL...



The screenshot shows a software interface for rating and billing validation. At the top, there's a navigation bar with links for "Rating and Billing Validation Overview", "Rating Validation Job Summary", and "Rating Validation Job Detail". The main area is titled "Job Summary" and displays the following details:

- Job Id:** 576
- Stream:** Postpaid Billing
- Start Time:** 2014-04-16 15:06:18
- End Time:** 2014-04-16 15:06:15
- #Errored Rate:** 0

Below this are three circular performance indicators:

- Overall Accuracy:** 95,6%
- Selection Accuracy:** 63,2%
- Actions:** View Top Differences, View File Summary, View Job xDRs, Remove Filters

The interface includes three main drill-down sections:

- 1. By Rate Plan:** Shows a table of rate plan differences. The columns include Rate Plan, Original Price, Value Difference, # Mismatched, # Matched, and # Mismatches. Examples include Standard Plan 100, Standard Plan 100, Standard Plan 200, Data Plan, Standard Plan 200, and Corporate Plan.
- 2. Drill by Sub Plan:** Shows a table of sub-plan differences. The columns include Rate Sub Plan, Original Price, Value Difference, # Mismatched, # Matched, and # Mismatches. Examples include National Data, National Voice, National SMS, International SMS, Roaming - Latin Amer., Roaming - Europe, International Voice, National MMS, and Roaming - Other.
- 3. Drill by Call Type:** Shows a table of call type differences. The columns include Call Type, Original Price, Value Difference, # Mismatched, # Matched, and # Mismatches. Examples include Data (With 2Gb Package), Voice call to same network, Received Calls, SMS to Asia, SMS to Africa, SMS to Eurasia, SMS to same network, Call to Oceania, SMS to East Asia, Terminating Call, Call to Europe, and SMS to other mobile networks.

SEVERAL SOURCES OF DATA IN ONE PLACE

AVOID ACCESSING OTHER SYSTEMS TO CHECK WHAT YOU NEED TO ANALYZE FRAUD

RESOLVE COLABORATE TO RESOLVE QUICKLY



30

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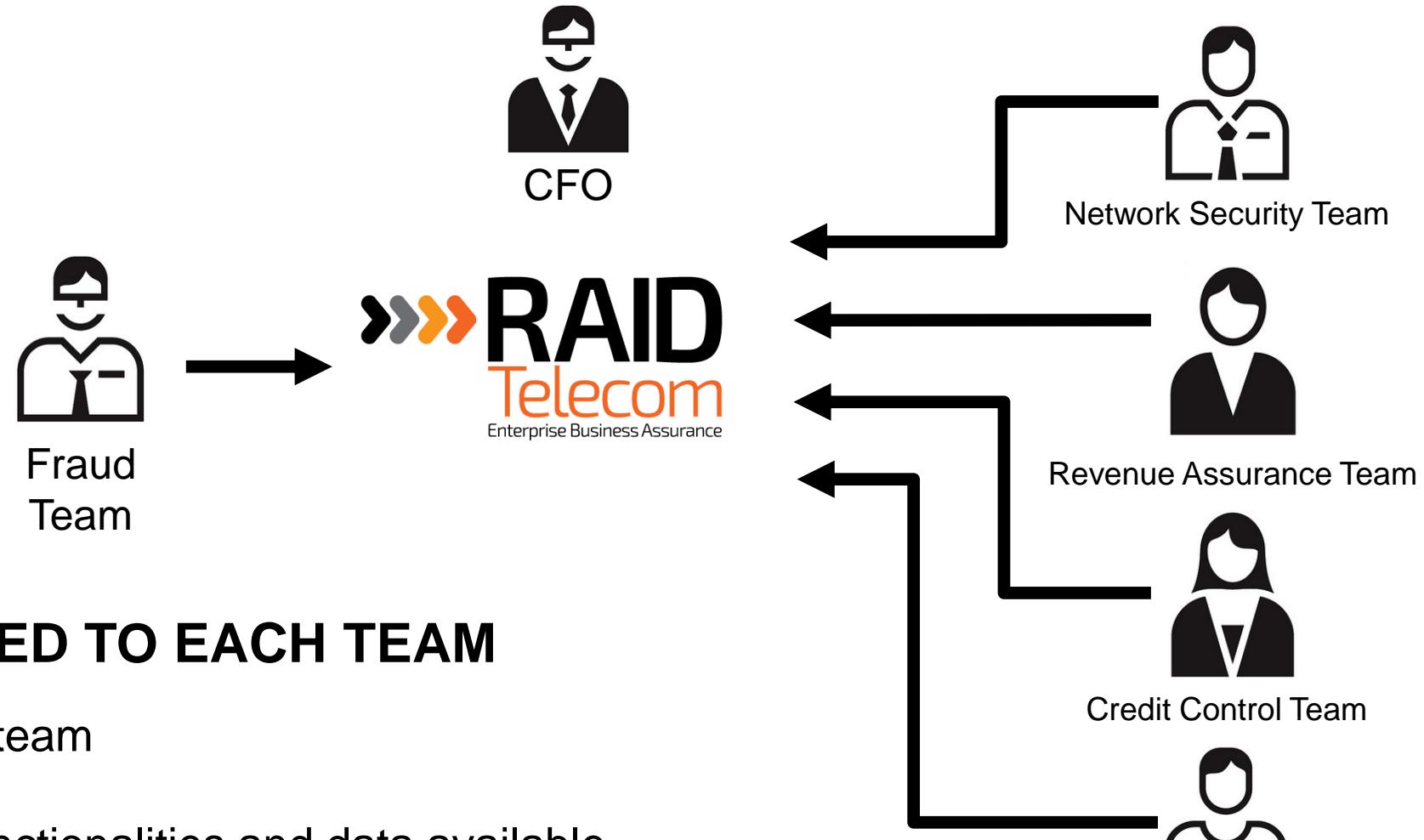
980805000000

The screenshot shows a composite interface for fraud analysis. On the left, a news clipping from "The News" dated May 9, 2014, discusses a cloning fraud gang in New Jersey. In the center, a research paper titled "Cloning SIM Cards Usability Reduction in Mobile Networks" by Mustafa A. Al-Fayyad et al. is displayed on the ACM Digital Library. On the right, a communication panel allows users to comment, attach files, and reference documents. Key UI elements include "Comments, Files, Ref", "Bold", "Italic", "Underline", "Send", "Cancel", "Task Private", "Task Visibility" set to "Fraud Team", and a "Fraud Team" dropdown. A yellow box highlights the "Files" and "References" buttons, while another yellow box highlights the "Task Visibility" dropdown.

EXCHANGE INFO TO ANALYZE FRAUD

- Users can exchange info through case comments
- Attach files and references to enrich analysis
- Control visibility over comments for certain teams

RESOLVE COLABORATE TO RESOLVE QUICKLY



ONE TOOL SUITED TO EACH TEAM

Different profiles per team

Security – control functionalities and data available to each profile

LEARN

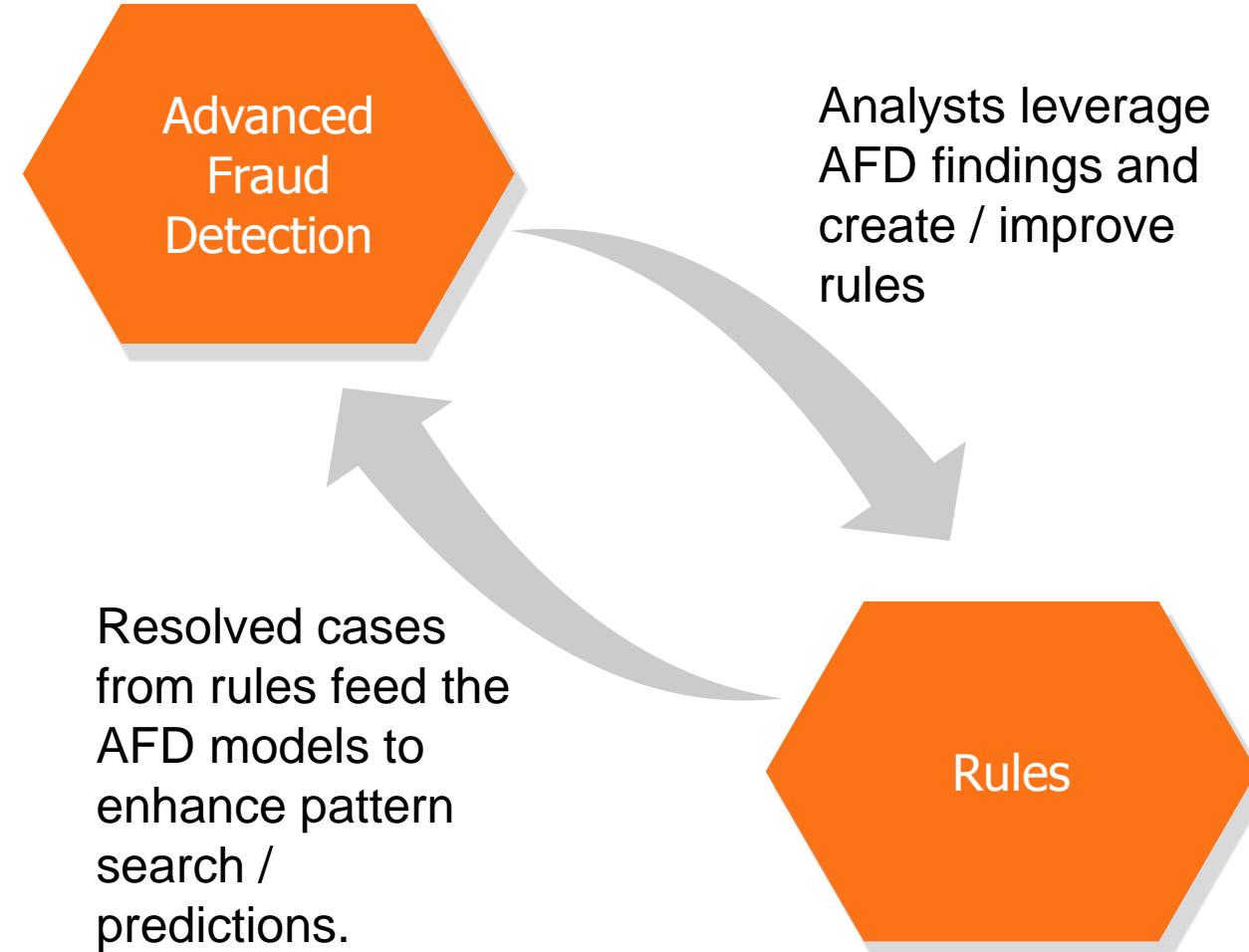
FIVE STEPS FOR
ADVANCED FRAUD
MANAGEMENT



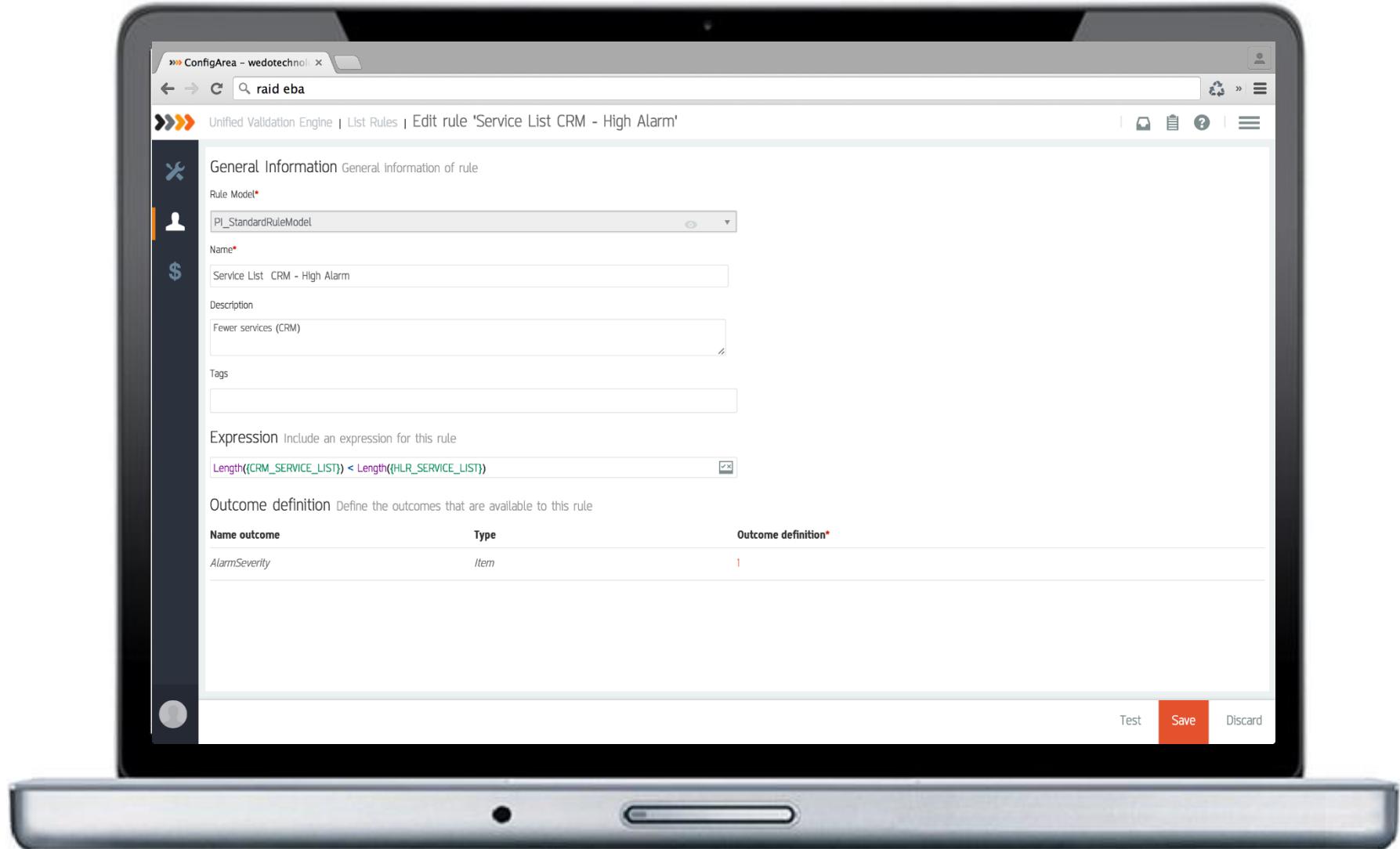
LEARN FIND PATTERNS, CREATE NEW RULES

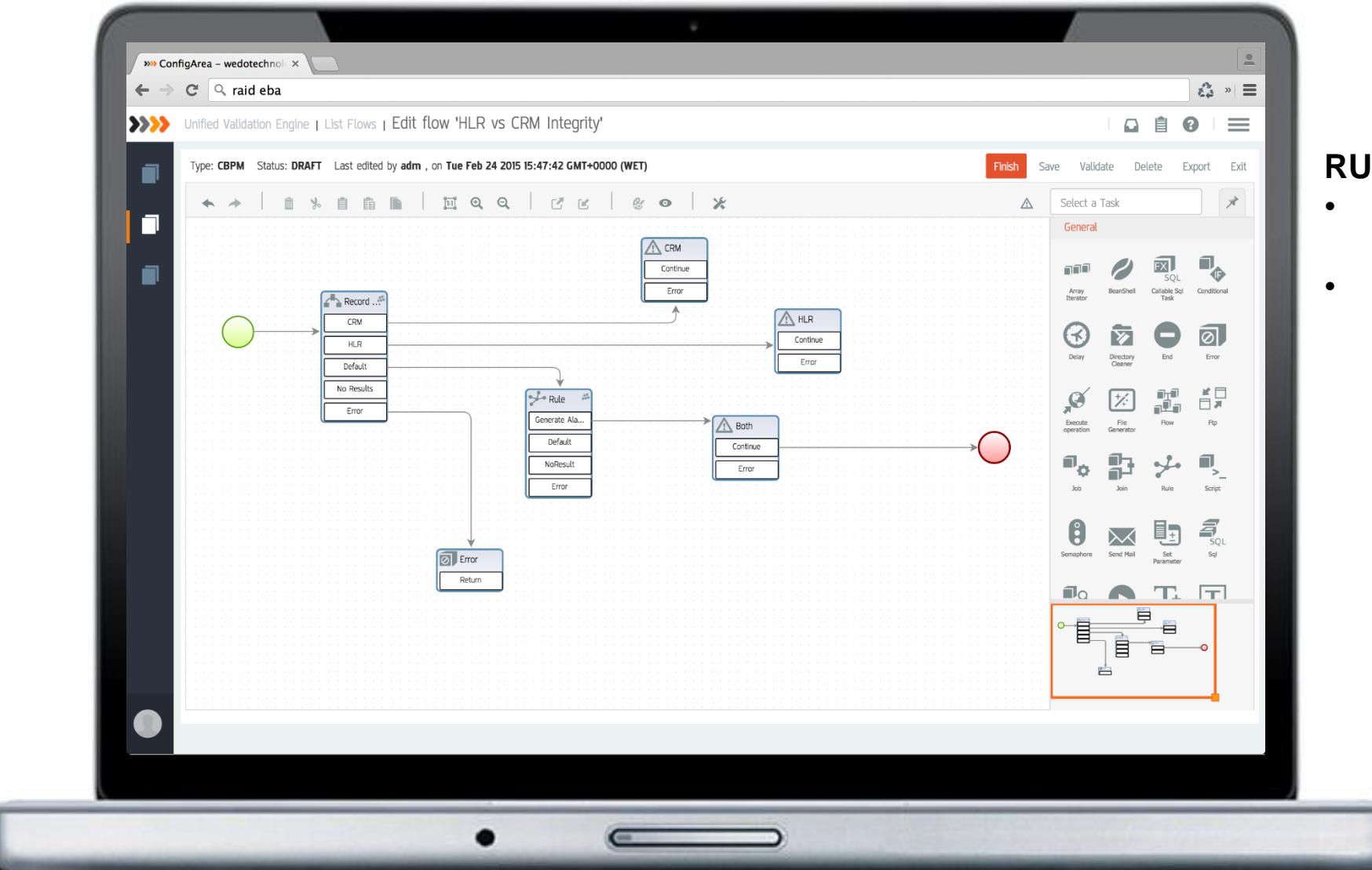


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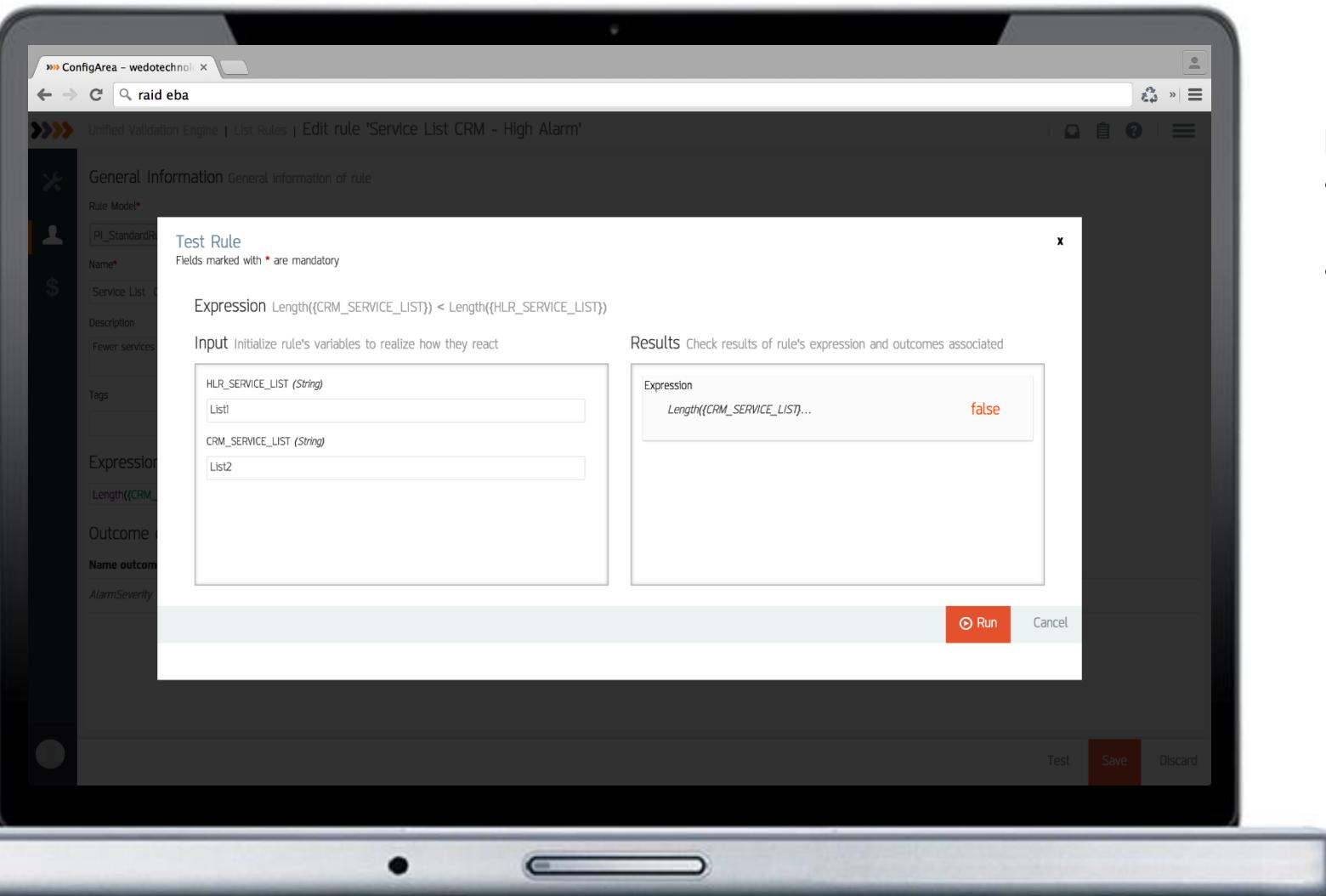
LEARN TUNE YOUR RULES





RULE OPTIMIZER

- Use your case history to fine tune rules
- RAID:FMS analyzes existing rules and suggests new thresholds



RULE TEST

- RAID:FMS analyzes existing rules and suggests new thresholds
- Analysts are able to test new values

RAID: FMS

IN THE CLOUD



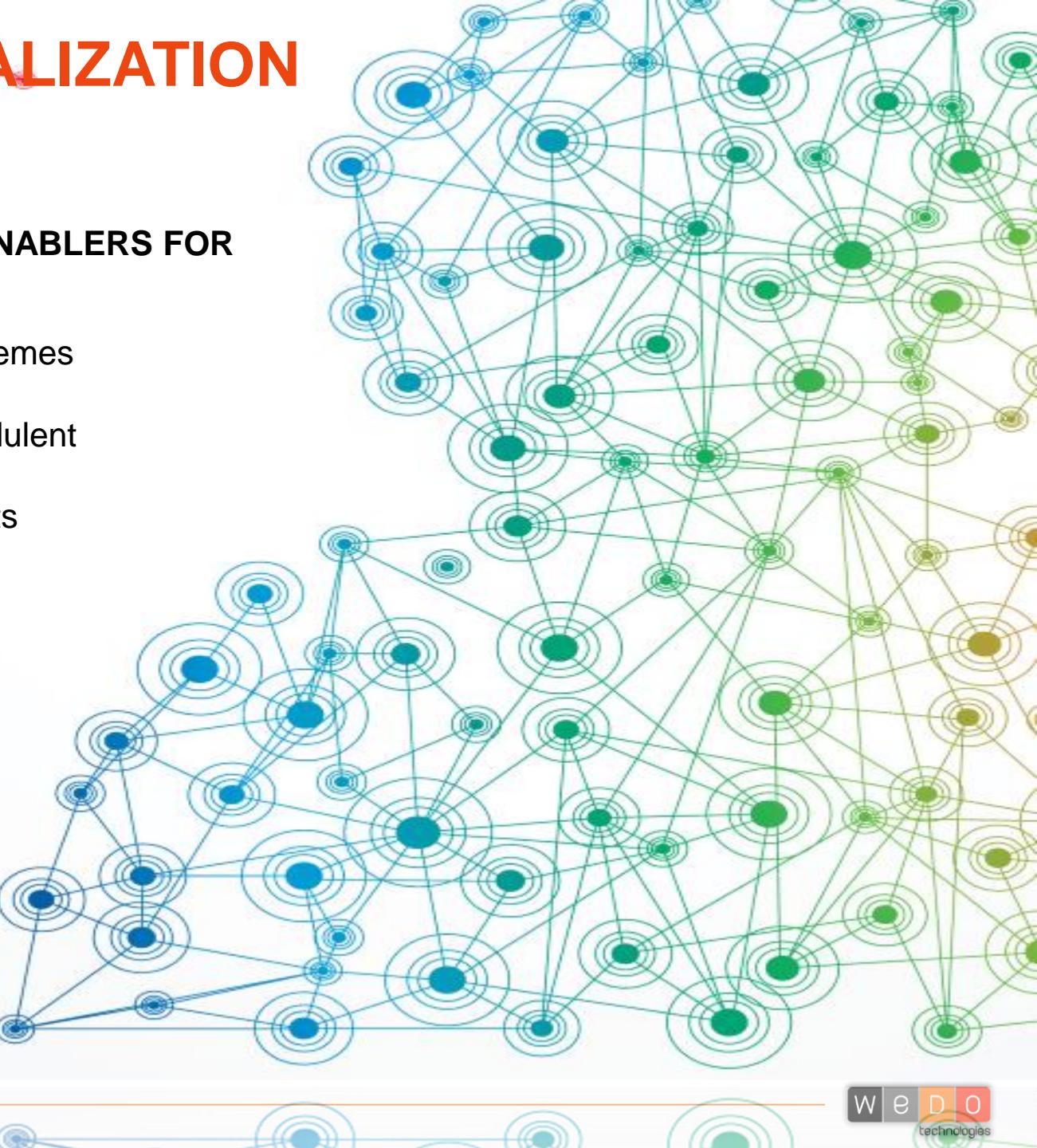
NETWORK FUNCTION VIRTUALIZATION NEW FRAUD ENTRY POINTS

SECURITY BREACHES ARE BECOMING PREVALENT ENABLERS FOR FRAUD:

- The introduction of new functions enables old fraud schemes (IRSF, PRS, etc.)
- Malicious middleware software designed to launch fraudulent enterprises
- Backdoors to HSS for the creation of fraudulent accounts
- Access to policy management for alteration to services allowed by fraudulent subscribers

OPERATORS WILL NEED TO MONITOR NETWORK FUNCTIONS TO PREVENT THESE ENABLERS

- Network visibility
- Analytics to provide valuable metadata in useful and meaningful reports and dashboards



NETWORK FUNCTION VIRTUALIZATION SECURITY CONCERNS



OFF-THE-SHELF VS CUSTOM-MADE:

- Malware becomes possible due to insufficient security testing
- Hardware not tested in the network function setup

SOFTWARE IS DELIVERED “ON-DEMAND” AND INTEGRATED WITH OTHER FUNCTIONS:

- Critical network functions (e.g. HSS) could be co-located with other network functions
- This introduces point of failures affecting several network functions
- Hypervisors and orchestrators introduce new attack surfaces

MANY MORE CONCERNS NOT YET DEFINED THAT NEED TO BE ADDRESSED:

- Botnets within virtualized functions
- Malware distribution through abstracts or even application software

RAID: FMS

CUSTOMER
REFERENCES

MORE THAN 30 FRAUD MANAGEMENT CUSTOMERS

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USE CASES



Assuring your Business for the Future