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i3 forum
international ip interconnection

GSM Association Fraud Forum

Presentation to i3 Forum

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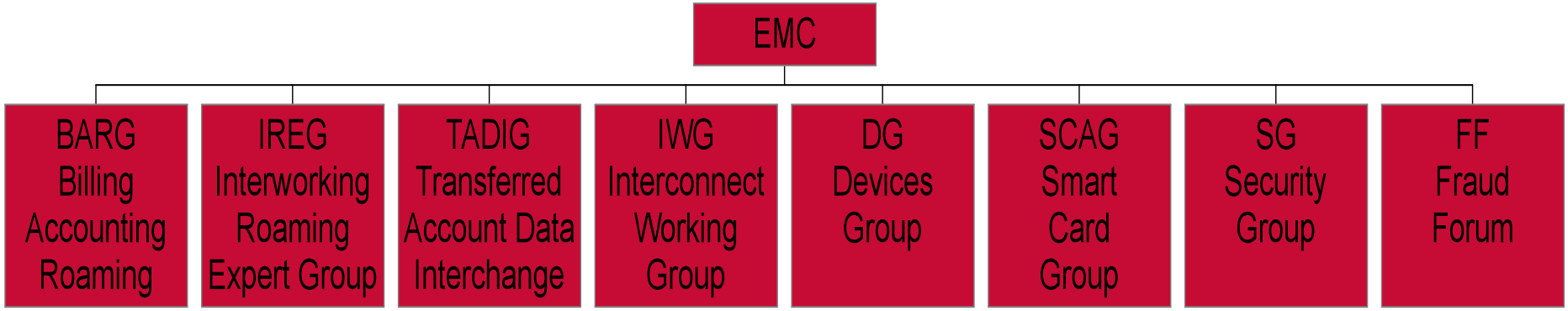
GSM Association (GSMA) Background

- Global trade association responsible for GSM family of technologies
- Global membership of nearly 800 operators and 200 manufacturers and suppliers
- Organised into working groups and projects on many topics, open to all employees of GSMA member companies
- Participation leads to industry solutions, information sharing and education

GSMA Working Groups

- Eight Working Groups report to EMC
- Focus on a particular area of competence, e.g. security
- Deliver solutions for the GSM community where cooperation is needed, e.g. roaming
- Operators provide subject matter experts to the Working Groups
- HQ provides support via a WG Director and Coordinator



Fraud Forum (FF) – Objectives & Membership

- Trusted forum on GSM fraud issues to minimise exposure for members
  - Develop fraud awareness
  - Exchange intelligence & best practice
  - Develop & maintain industry countermeasures e.g. NRTRDE
  - Assess the fraud exposure of new services
  - Collaborate with other GSMA working groups and projects
- Provides value through **education** in addition to formal work items.

FF Membership – Jan 2012

	Total across FF, Asia-Pac FF & Africa FF
Individual members	487
Countries	106
Companies	242
Operators	199
Associate members	43

Evolution of Mobile Fraud

- Analogue - subscription fraud
- Analogue cloning - personal use, Call Selling (later inc. PBX fraud)
- Premium Rate Service (PRS) fraud (domestic)
- Roaming PRS fraud
- Credit card fraud – prepay
- SIM cloning (small numbers) + Roaming PRS, etc.
- International Revenue Share Fraud (IRSF)

Current key issues:

- Subscription fraud
- Roaming
- GSM Gateway/SIMbox (bypass)

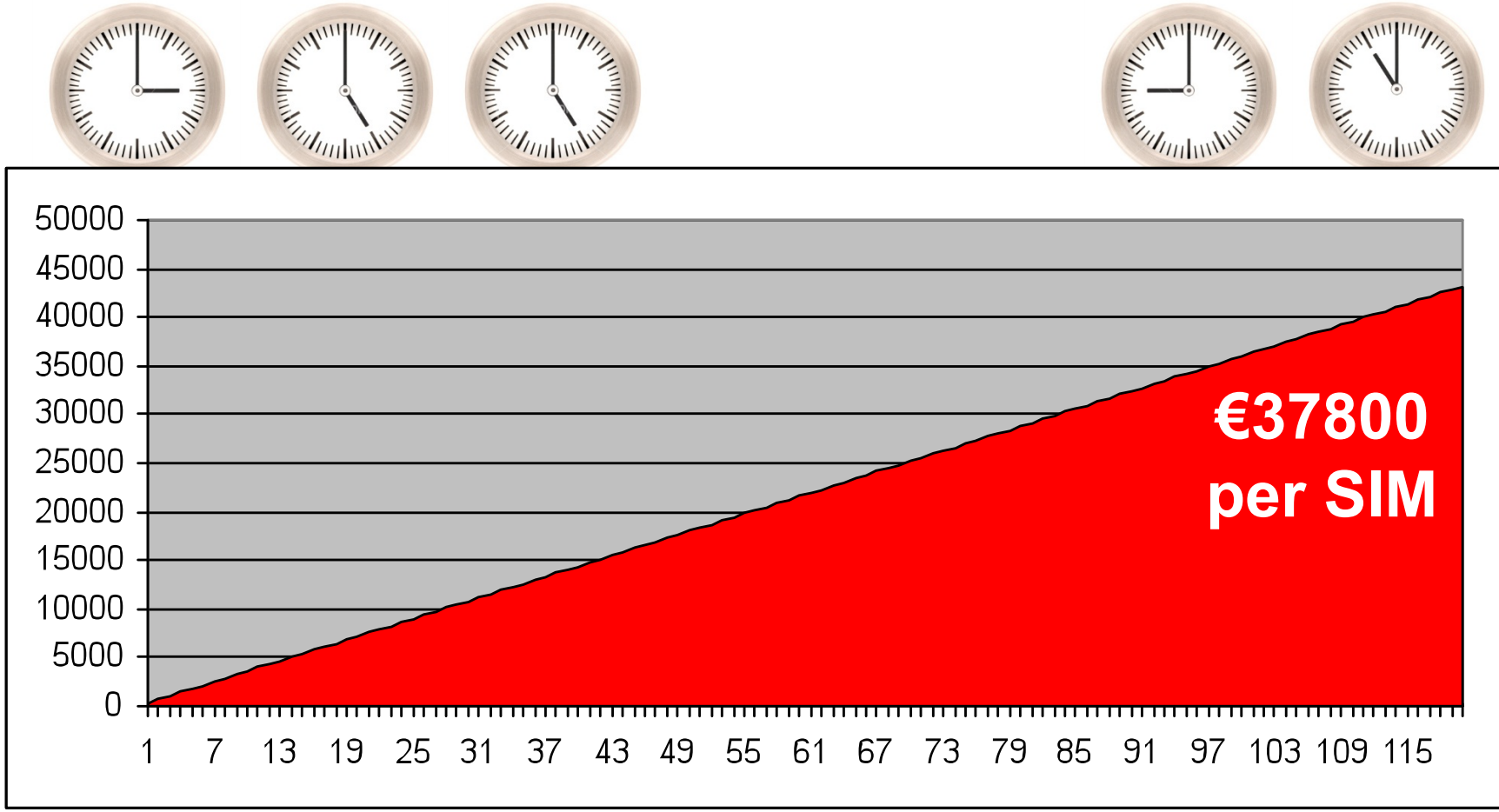
03:00 Thurs

05:00 Thurs

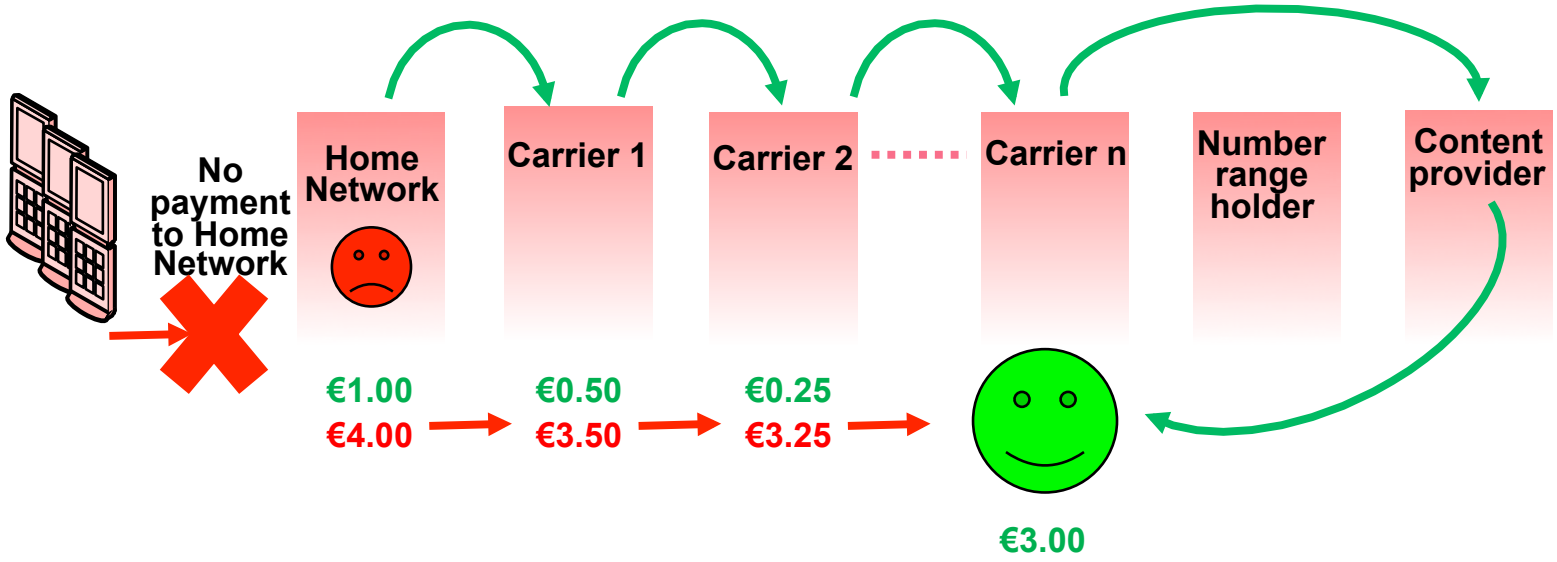
17:00 Fri

09:00 Mon

11:00 Mon



Optimised Fraud



- Short – stopping by fraudsters
- Number Range hi-jacking

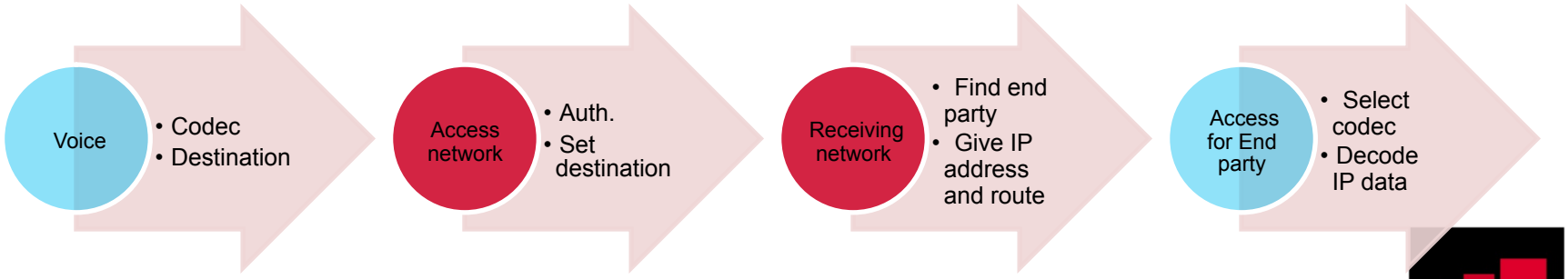
What next (and what's in a name)?

- 4G
- LTE (Long Term Evolution)
- NGN (Next Generation Networks)

- all terms referring to mobile evolution from circuit switched to packet switched services

What is a Next Generation Network?

- Support for services, applications based o
- Interworking with legacy networks via open interfaces
- Unified service
- Converged services
- Services don't have to be from the Mobile Operator



IP & IMS Systems

- First time in mobile telecoms that the bearer providing the service is totally separate from the services offered
- In effect, this means two separate operators can run services, one for the service and one for the bearer
- Within 10 years Telco networks will be solely IP backbone and conventional switching will have disappeared due to cost
- All services offered will be digital

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NGN issues - Identity Management

- There are now two types of identity - for the bearer & service layers
- Different identities may be combined into one account
- There will be a number of other identities used internally in the network
- Many of the identities are dynamic and change in session

Service Identity

IMPU
IMPI
sip_uri
tel_uri
E.164

Bearer Identity

- Account ID, Radius ID
- IMSI, Terminal ID
- MSISDN, Fixed line access number
- IMEI, Device Electronic serial number

NGN: The Challenges

- The key areas for challenges and risks are:
  - For Operators - control of separate Bearer and Services
  - Service Providers - lack of total control and information
  - New players with lack of knowledge and/or experience
  - Fraud Management - new technical opportunities for fraud
  - Revenue Assurance - Different billing models and data sources
  - Security - More complex technical controls
  - 3rd parties - Control and trustworthiness of billing and content!

- A mix of:
  - More complex technology
  - Different billing models

So Fraud will be different

IMS: IP Multimedia Subsystem

- IMS means a complete new network that separates the bearer network and can work across many network types
  - Mobile GSM, 3G, CDMA etc.
  - Fixed networks
  - WLAN
  - PAN e.g. Bluetooth, IR or Near Field Communications (NFC)

- IMS does not standardise applications, but aids access of multimedia & voice applications across wireless & fixed terminals
- IMS provides 'horizontal control layers' that allows the separation of the access/bearer network from the service layer

- **This drives different needs for fraud & risk management**

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Customer Terminal Device

- In NGN, the “end point” can be called different names in different network types can be:
  - Mobile Phone (GSM, CDMA, …..)
  - Data terminal – tablets or smartphones
  - ASDL or Cable Router/ Modem
  - IAD (Integrated Access Device)
  - CPE (Customer Premise Equipment) for fixed networks

- They all have some common functions:
  - Store an identity such as SIP Username and password
  - Have an IP address (allocated or dynamic)
  - Have some other identity such as an equipment identity
  - Have an operating system and memory and run applications
  - Generally poor internal security or fraud controls so these need to be in the CSP’s systems

Key Issues for Next Generation Services

- Every service can be very different and made up of different component parts - both IP with interaction over different **Bearer** and **Services**
- Content and payments will move operators to a different risk profile similar to those of banks and retailers – e.g. money laundering, undelivered goods etc.
- Issues for the operator on CPE, IAD, SIP & smartphones and the applications that exist on them – corruption or malware
- Proof of the location and identity of the user and transaction is difficult with mobile and IP based services!

NGN Service Groupings

Professional:
- Video Conference
- Multimedia Sales
- Advertising
- Informative
- Remote Vigilance
- Mobile Marketing
- On Line Training
- Location Based
- Security Surveillance
- Mobile Office
- Presence

Financial:
- M – Commerce
- Virtual Banking
- E – Payments
- On Line Billing
- Stock broking
- Auctions
- Government
- Community
- Financial Transactions

Entertainment:
- Informative
- Multiparty Gaming
- Music
- Movies
- Video Content
- Gambling
- TV
- Radio
- Pictures
- Messaging
- Video Sharing

Shopping:
- M – Commerce
- Auctions
- Retailing
- Ticketing
- Booking
- Working
- Advertising

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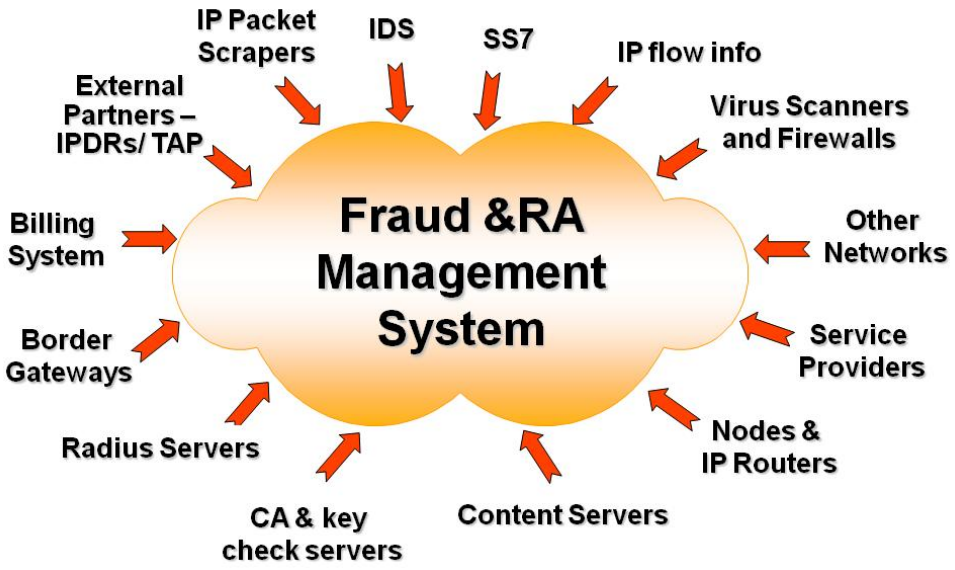
Challenges for Fraud & RA

- More complex both from a technical and operational perspective
- Data more real-time and complex - increased need for the collection of events
- Linking data in Bearer & Services
- Requires new data feeds from new services platforms



NGN Frauds?

- Aim for the highest value content or greatest volume
- Hackers and Malware writers looking for notoriety by implementing widespread damage / maximum financial gain
- Fraudsters from the Finance Industry targeting M-banking & M-commerce
- Will make more use of internal information and work with internal staff due to better external controls
- Criminals will exploit the same approaches as today but with a greater potential reward….. Moving away from simple airtime usage – comparatively low value!

NGN Fraud Management Approach

- NGN FM approach will be a variation of what is done today, but it will be more complex both from a technical and operational perspective
- Significantly more data and increased need for the collection of events from many places compared to present
- The identities may not have a known location for traffic origination or termination? 20% of IP are not where they are geographically expected
- Traffic can originate in different places - no need for a central switch location where call records can be collected for FM purposes

Services Fraud Management

- Fraud detection of the services layer will be partly the same as today - many services used combined with multiple bearers
- Provisioning related fraud will need detecting as a lot more self care will take place and it will also be driven by the billing model
- FMS will need to know which services the customer is allowed to use - needs much more control of provisioning fraud than with present systems

Fraud Control & Management Panel Discussion

Panelists:

Dima Alkin, Director, Sales Support, North America, Cvidya

Peter Coulter, Member of Executive Cmtee-FIINA, Executive Director, Global Fraud Management, AT&T

Steve Heap, Senior Technology/Communications Executive, IPSoft

David Morrow, Group Corporate Security Fraud Manager, Vodafone Group Services Limited

Thomas Walker, Director - Business & Solutions Consulting, Subex

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The Future is All IP

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