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IP/IPX a key pre-requisite to further transformation

- Survey in 2016 : migration to IP & IPX is slow
  - IPX is still perceived as a gray area
  - Major obstacles impacting the migrations include (consistent with GSMA findings) :
    - no clear business case for IPX
    - no clear industry definition or standard for IPX
    - still slow to implement

- Market requires additional support to expedite migration : IPX Self-Certification initiative
  - More clarity to what IPX is and isn't
  - Address identified obstacles
  - Tool to assist with further adoption

- What does the market say IPX is ?
  - Total segregation from the internet,
  - QoS and SLA, Class of service Capable, The world in 2 hops or less….
  - Multi-Service capability

Transition to IP & IPX Working Group

What's next ? Let's discuss this initiative

- Foster adoption of IPX by Carriers and MNOs by helping to alleviate two obstacles :
  - Confusion about IPX – that slows down the decision making
  - Complexity and lack of guidance - that slows down implementation

- Develop an industry approved "IPX self-certification tool kit" for IPX providers and their customers (jointly with GSMA)
  - clarify what their IPX offer (or requirement) is - and isn't - against a commonly agreed IPX definition
  - describe key technical, operational and services features against commonly agreed recommendations & best practices
  - accelerate and simplify implementation by leveraging practical tools derived from industry best

- Focus for next year : clarify the "Grey Areas" of IPX
  - Definition
  - Business Model
  - Operations

IMS Working Group

NNI Definition, Service Interoperability, Business Model Definition

- IMS-Based Services: Network – Network Interface Definition
    - Transport layer interfaces ; Signalling protocols
    - Codecs (voice and video) - with engineering guidelines
    - Security at transport layer
    - Alternatives for service configuration at NNI - "best implementation practices"
    - Interconnection Forms for four services : Voice over IP, Voice over IMS, ViLTE , Diameter Signalling

- IMS-Based Services: Service Interoperability
    - Basic principles for call routing, QoS control and monitoring, network security service at application layer
    - Analysis of five major interworking scenarios: IMS to IMS (with and w/o fixed/mobile interworking), Legacy to IMS, IMS to VoIP, WebRTC
    - Roaming scenario (LBO and S8HR) ; Features and capabilities of the hubbing mode

- IMS Business Model Definition
    - Working closely with GSMA (Network 2020, WSOLU, NG…)
    - endorsed three layer architecture (transport, signalling, service)
    - proposed a charging unit scheme
    - proposed best practices to speed up NNI implementation

Looking ahead : roundtable discussion on the future of IMS

1. In addition to VoLTE/ViLTE, RCS which service/app should rely on an IMS platform?

2. Which business model (and related charging units) should SP/Carriers adopt in IMS?

3. Is there any (basic) problem in VoLTE interoperability?

4. How to "discover" the profile (TDM / IP / IMS) of the called party and how to properly route the call?

5. Which roaming scheme has to be adopted (LBO vs. S8HR)?

6. How to reduce the implementation time of an IMS NNI?

7. What is the impact of NFV paradigm implementing an IMS platform?

8. What is the impact on OSS/BSS?

9. ……………………

IMS Int. Services can be offered today, but a lot has to be done in order to achieve completeness and efficiency

NFV Working Group

Exploring the impact of NFV

- Objective of Working Group
    - explore impact of SDN/NFV implementation in the Service Providers' and Carriers' networks
    - analyze how SDN/NFV is changing the current services in terms of configuration, implementation, information exchanged, operational process, expertise of the personnel, etc.
    - identify whether and how SDN/NFV modify the current way of interconnecting for wholesale services
    - evaluate the additional efficiency Service Providers and Carriers can gain adoption a SDN-NFV architecture

- Deliverables
    - State of the art in NFV – May 2016
    - Operational Impact of NFV – May 2017

- Operational Impact of NFV (May 2017)
    - Processes : Engineering, QA, Commercial, Site, IP, Security, Provisioning, Other
    - Technical : Activation and Provisioning, Change management, Inventory management, Performance management, Fault Management, SLA management, OSS/BSS
    - Organizational : Culture, Headcount, Performance, Re-architecting NFV Solution to Fit Existing Infrastructure, Inter departmental commitment

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New Areas to Explore

- Sharing information to migrate successfully – what are the main components (hypervisors, virtual components, cloud software, orchestrators

- Multi-vendor / open source implementations – how to put all the pieces together, what works with what

- Issues encountered if any from those PoCs – lessons learned

- How can carriers improve their infrastructure to support such technologies – what can be achieved and what are still open issues

- Dimensioning rules for NFV

- Debugging in NFV

- HA in NFV (using public clouds)

- Moving beyond NFV to cloud

IoT in the Carrier World : whitepaper published in May 2017

- How are Carriers contributing to the IoT ecosystem?
  - Connectivity services : Public Internet, MPLS, Capacity, IPX Transport
  - Voice and SMS services
  - Roaming services : Managed Roaming service, Roaming Signaling (SIGTRAN and LTE Diameter), Data Roaming, Voice and SMS, Roaming based on other type of connectivity (WiFi, LORA, etc)

- Are Carrier services adapted to IoT ecosystem requirements ?
  - Signaling Storm is affecting MNOs and also Carriers
  - SLAs are required between Carriers on those services where IoT traffic is
  - Real time communications and redundancy is getting more importance in a growing IoT ecosystem
  - IoT coverage is limited in roaming scenario due the agreement and cost

- Hot topics Carriers can explore :
  - Create specific IoT Transport service with QoS and SLAs (i.e. IPX Transport for IoT)
  - Hosting services based on Data Centers
  - One-stop to get connectivity worldwide, providing local connectivity thru SIMs or MVNOs
  - Collect and analyze all IoT data passing thru the Carrier (Big Data)
  - Security features are already provided in current services, but it may not be enough.

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What else can we explore ?

- Is it feasible to create a specific IoT network separated of the mobile network?

- How will 5G affect the IoT ecosystem and Carriers?

- Will Network Neutrality affect IoT services?

- Should Carriers centralize IoT services as a single entry point for MNOs?

Fight Against Fraud Working Group

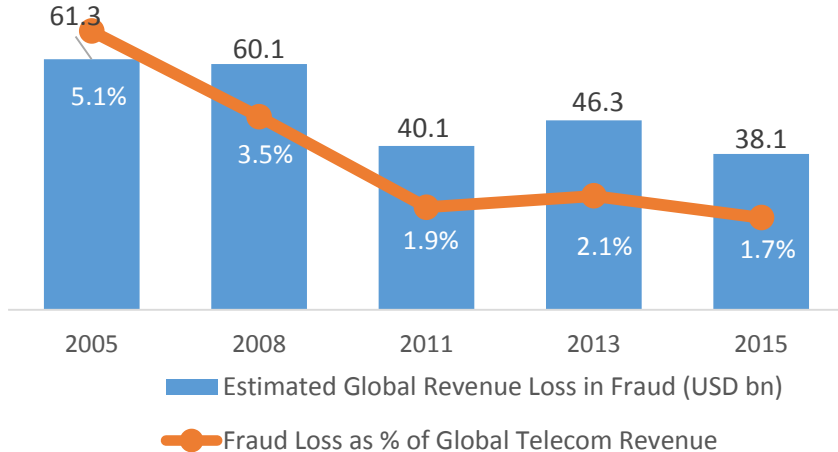## Telecom fraud by the numbers…

$2.25tn
Global Telecom Revenue (2015)

$38.1bn
Amount lost Annually to fraud (2015)

~2%
Global Telecom Industry Revenue Loss

Chart: Estimated Global Revenue Loss in Fraud (USD bn) and Fraud Loss as % of Global Telecom Revenue

Year	Revenue Loss (USD bn)	Fraud Loss as %
2005	61.3	5.1%
2008	60.1	3.5%
2011	40.1	1.9%
2013	46.3	2.1%
2015	38.1	1.7%

Legend: Estimated Global Revenue Loss in Fraud (USD bn)

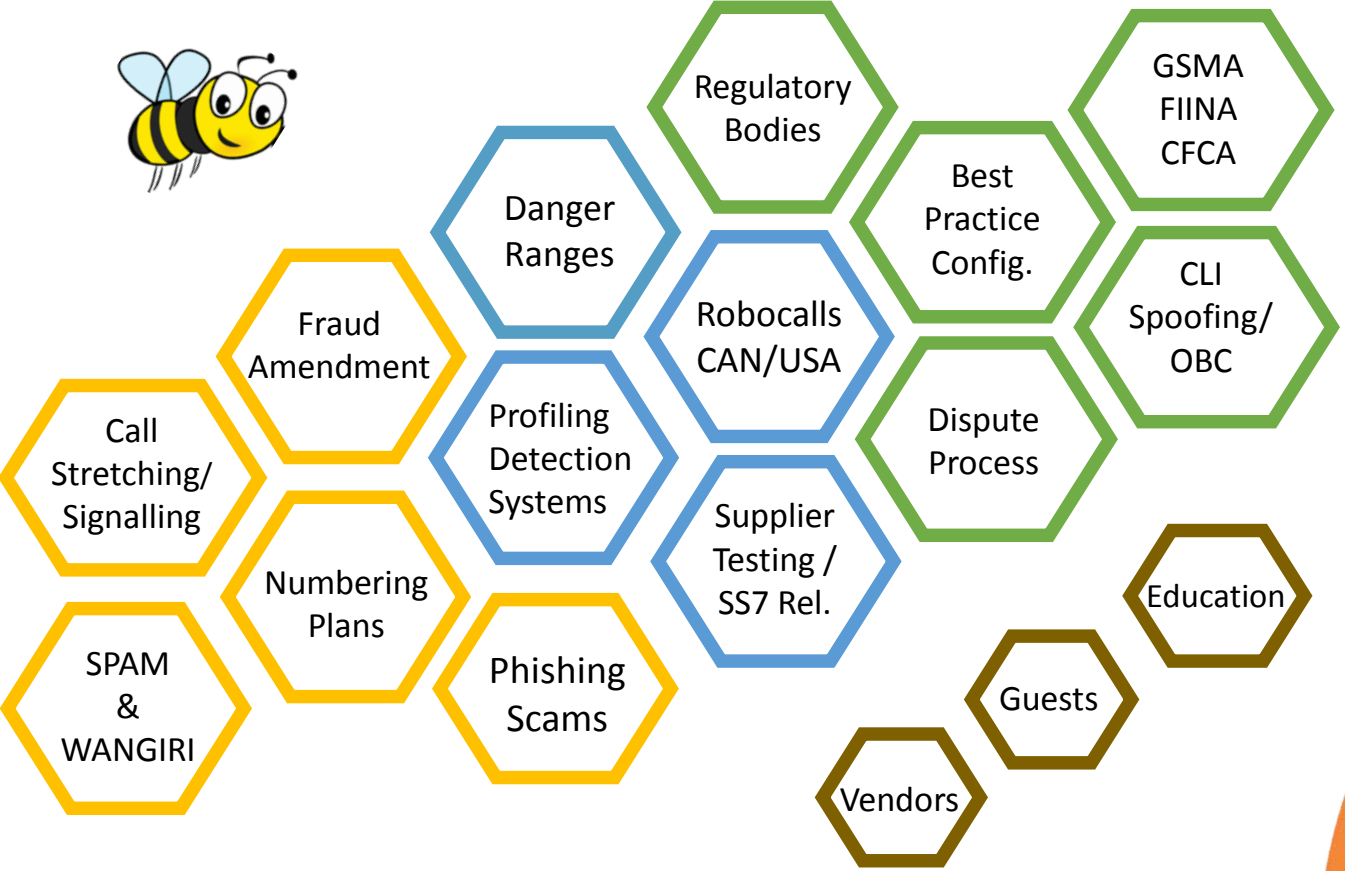Fraud Loss as % of Global Telecom Revenue

Europol indicates that *telecom & cyber fraud is now bigger and more profitable for criminals than the narcotics trade*

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Fight Against Fraud Working Group

i3 Fraud Forum Workstream subjects addressed

- Regulatory Bodies
- GSMA FIINA CFCA
- Danger Ranges
- Best Practice Config.
- CLI Spoofing/ OBC
- Fraud Amendment
- Robocalls CAN/USA
- Call Stretching/ Signalling
- Profiling Detection Systems
- Dispute Process
- Numbering Plans
- Supplier Testing / SS7 Rel.
- SPAM & WANGIRI
- Phishing Scams
- Education
- Guests
- Vendors

Draft whitepaper available

- We have produced a draft white paper on UC at a very high level.

- UC is a very wide topic to address – from user interface, application integration and network quality and security
  - UC is not a single solution but a number of technologies that often combine
  - Like many business solutions to be a success it needs to be implemented at many levels from the network up and the business layer down
  - As many service providers will not want to play in all areas of the UC solution stack we have broken down UC into a number of key elements
    - Network layer
    - Security
    - Application integration

Key asks

- Need the UC team to engage and give their input, help with the paper.

- Brainstorm new topics to add to the paper.

- Focus on a core team to do this as I know people are busy and this is not the Top of anyone's agenda.