Consultation response form

Global trade association Mobile Ecosystem Forum
https://mobileecosystemforum.com/

Comments in representation of MEF members and with the specific comments attributed to FICO, (www.fico.com), Neustar, (www.home.neustar) and Hiya (https://hiya.com/uk/)

Your response

Question	Your response
Question 3.1: Do you have further views about the implementation of STIR?	Neustar • The STIR approach is a solid way to enable trust in the calling party. Hiya • CLI authentication is a valid method to limit inter-carrier CLI spoofing, Hiya is an active supporting member of ATIS task force. • STIR, however, is not the complete solution for providing trust in calling party numbers. Given that the number itself is only part of the SPAM/SCAM story, it is entirely possible for a fraudster to obtain a group of legitimate numbers that are STIR validated and use those for fraudulent / nuisance calls to a called party. STIR provides authenticity to the number, not the caller. • Hiya welcomes support of STIR and agree that it can certainly be adopted as part of a wider SPAM/SCAM caller trust initiative but cannot be relied upon for sole-network and called party protection. It is worth noting, that STIR does not need to be a pre-requisite to a trusted caller solution, but can first-and-foremost be a tool for analytics services to efficiently detect repeat unwanted call MEF Notes • **CLI Authentication is a valid method that is supported by the ecosystem members at MEF to limit spoofing**. The STIR specification has support from our members and momentum from the USA roll-out. • However, by itself STIR is not 'the solution' for long term Trust in Telephone Numbers. **Verifying the source identity is not, by itself, sufficient to solve malicious, fraudulent attacks and nuisance calls. It is only a necessary precursor: a tool that can be used to build actual solutions.** It might also be useful in tracing the source of fraud and securing their entry-path in order

	to prevent future attacks. Hence, the **introduction of STIR should be part of a wider design/ plan.** The future solution should not be an afterthought, or secondary to a technical implementation – Ofcom should integrate design a wider approach where STIR could play a role alongside other solutions and business processes. (See following answers)

Question 3.2: Are there any other approaches we should consider for addressing CLI authentication?	Neustar
	• Additionally, the CLI can also be authenticated using the numbering plan which is publicly available information. Various checks like:
	  ○ Is the phone number a valid number (in a legitimate number block)?
	  ○ Is the phone number a valid length?
	  ○ Is the phone number an allocated number in the regulator's number plan?
	  ○ What is the telephone service type? Freephone, Geographic, MNO, Premium, Satellite, etc.
	  ○ Is the phone number high potential IRSF risk number? Or part of High Risk Number Ranges that have been reported by operators to commit fraud?
	
	Hiya
	
	iya Notes
	• Additional considerations can be Reputation validation and Identity presentation
	
	• **Reputation**: By integrating a Reputation capability into a fixed line or mobile carrier network, it is possible to deliver enabling actions as part of the call enrichment process (e.g. continue, block, screen, send to VM) based on:
	  ○ Incoming Number Reputation (e.g. Fraud, Spam) via an interface that can be presented by the supplier's reputation system
	  ○ Subscriber/User Preferences management including subscription add, upgrade / downgrade and remove premium SPAM / SCAM protection services
	  ○ Providing caller identity via supplier's identity system
	  ○ Whitelist and Blacklists provisioning can be pre-defined with the support of the carrier or third-party list providers
	  ○ Call velocity measurements (high volume of originating calls from the same number)
	  ○ Offering called clients to request real-time spam/fraud information about a phone number or a call/text event. This includes both a spam warning flag, and if possible, a categorisation of the specific SPAM / SCAM being executed. In return, clients maybe asked to optionally provide signals about call and text traffic to enhance the

reputation engine, as well as user reports of spam or not-spam. A highly active number could have its reputation updated within near real-time from the first signal.
    - Looking at the A/B call, appose to just the called number CLI provides a holistic view to calling behaviour increasing accuracy of SPAM / SCAM detection. To that point, coverage without accuracy will get a carrier into trouble as this will incorrectly identify valid calls as nuisance. When it comes to detecting unwanted calls, it is more critical to only label calls that are objectively unwanted, correctly classifying calls and generally avoiding 'false positive' detections. This is particularly valuable to the enterprise customers of carriers, as connecting to their customers is vitally important and if their calls are incorrectly identified as unwanted, it directly impacts their ability to conduct business. In addition, there may be significant legal risks and operational expenses associated with 'false positives'.
    - Authentication and validation mechanisms can be utilised by the carrier and/or owners of originating numbers to ensure only their numbers are used legitimately and in cases where the caller originate number is utilised outside of agreed parameters, it is considered as SPAM / SCAM by the provided service and be flagged accordingly.
    - A suitable industry benchmark 'Detection Score' that allows for the identification coverage of an over-aggressive system to be tempered by the inevitable increase in false positives that arise. Hiya has significant experience in this area.

- **Identity**: To dovetail with the reputation service, the need for an identity database for genuine business callers can build call trust. Suppliers of identity can provide this capability fall into two categories: bulk providers, and real-time providers. Availability to consume government generated phone number lists is a plus as well as lists generated by non-profit agencies, such as trade groups or chambers of commerce. These lists can cover national, regional, and municipal government contact information, for example, the phone numbers of human services agencies or phone numbers for first-responder services.
    - For GDPR compliance, contact 'harvesting' or 'mining' customers' personal information or the contents of their device's address books should be prohibited.

MEF Notes

- Additional considerations that could enrich view/processes around CLI Authentication include:
    - **Reputation based system** (1) **changes in numbering**:

moving away from geographical attributes (these are not required for trunking, nor useful for user pricing guidance). But new numbering plan could be used to differentiate Person to Person communication from business caller parties, and more importantly to Application-to-Person. Indicating the different type of communications can be a useful way to let user feel empowered, and to build trust in the ecosystem.

- **Reputation based system** (2) **Alphanumerical Support**. The Trust in Telephone number can also improve with support for a **regulated 'Calling Name**.' This would **not be able in a first phase (as it is not scoped), but it should be defined as a policy goal.** Just like in Mobile Messaging and in Internet addresses an allocation of Alphanumerical fields can help enrich and validate the sender and build more trust in the telephony. A secure, premium service for a verified Alphanumerical Calling Name should be considered as a way to finance the service. **Members at MEF are keen to make fixed and mobile experience comparable to the customers.**
- Avoiding "call spam / robocall" – the availability of free calls has encouraged misuse of the telephone services by some bad actors. Self-regulation by national and international player should discourage spam and nuisance calls. MEF members have actively created a code of conduct for the mobile A2P services with positive results. MEF members are willing to expand the **self-regulation** lessons learnt in mobile to the fixed market.
- **KYC in number allocation**: strong business processes in number allocations for both fixed and mobile numbers. A valid source number does not prove the caller is not acting illegitimately. Worldwide malicious parties can still obtain valid E.164 numbers and use them to attack. For example, in certain markets it is possible to buy SIM cards in bulk or in vending machines without any identification. These can then be used SIM-boxes to perform bulk calling or fraud. The sense of non-traceability provides confident to illegitimate players. Ofcom should consider the impact of these processes – industry self-regulation could support for better business process.
- Further tools for enterprises to flag specific numbers in database (black / white listing). For instance, it should be possible for an enterprise (e.g. a bank) to flag numbers in a black list (e.g. an in-bound only call centre) to the STIR

	database. This high-risk flag should be supported in the Certificate Repository as an additional Fraud Detection/Control. • **International Traffic Policy**. The implementation of STIR in UK numbering would still allow malicious traffic from international numbers. This would simply generate a displacement of fraud attacks from national to international traffic, but not necessarily a reduction in consumer issues. Support for wider international implementation of STIR would be necessary. Solutions being proposed in USA, Canada etc – the STIR solutions must consider international traffic.
Question 3.3: Do you agree a common database would be required to support the implementation of STIR?	Fico • FICO would like more details on how the database will be used to support STIR Neustar • There has to be an authority for issuing certs for the service providers. Hiya: • At a minimum it is necessary to verify legitimacy of certificates associated with STIR call traffic which may require some common solution to confirm that legitimacy. • Depending on its contents, a common database could provide numerous value to a larger call protection solution. This includes phone allocation and validity information, identity information, and others. But such components should be seen as enhancements to STIR implementation. MEF notes • A common database for numbering in the UK would be welcome by MEF members – and an important element in the STIR implementation. • The creation of a new database would require SLAs to be in place around specific technical and business processes requirements: including traffic volume and latency (e.g. not exceeding ~100ms). International experience by similar schemes can be a valuable benchmark.
Question 3.4: What are your views on using blockchain technology as the basis for a common numbering database to support CLI authentication? What other solutions do you think should be	Fico • I think this is a good idea to guarantee the integrity of the CLI information being passed through. But if the source is already compromised then would blockchain work? Neustar • Based on answer to 3.2 above, the local numbering plan databases can be used in blockchain technology for additional validation where a ledger holds keys for numerous regions. But for STIR itself, we are not yet ready with a blockchain solution.

considered and why?	Hiya Blockchain has not been a requirement for previous successful certification solutions. While it may work here, that does not seem like a requirement. MEF notes • Blockchain is only one of the technologies at disposal. As a general approach, it would be more important to align with the ecosystem requirements and key performance indicators (see above) before limiting the choice to one specific technical solution. • Multiple players already support solutions for existing numbering database and are actively working on roadmap for evolution. Would the development of a new database solution help UK to obtain a more reliable and efficient solution? Is there a cost/benefit evaluation? • More details would be required to evaluate the block-chain solution per se. What was the overriding principle to prefer a block-chain solution? Within block-chain it would be important to discuss if this is envisaged to be a public, federated, or a private blockchain. Each would have different implications and important trade-offs. In the proposal we read: "Unlike traditional databases, distributed ledgers have no central data store or administration functionality." Members of MEF can see potential value in distributed ledgers but are not clear on why a single administration would be negative. **The advantages of multiple, decentralized storages / ledgers are robustness and trust**, **but in some instances, this is at the expense of confidentiality and processing performance**. Overall the principle of security, confidentiality of information and control might be better served by a private blockchain or a centralized database. We would welcome additional information on the solution.
Question 3.5: What are your views on timeframes?	Fico • These appear to be valid, especially if the PSTN switch off date is definitive. Neustar • Using blockchain for 3.2 will definitely need much more time since those pockets of information are not yet available.
Question 4.1: What are your views on the current implementation of number portability in the fixed and mobile sectors?	Fico • Fixed line porting is problematic, process is not clear, cutover and downtime is not visible to end user. • Mobile porting better, customer well informed of process and cutover and is visible on the handset. Neustar • There is not enough consistency in how it is implemented in major markets. Countries like UK and Japan don't have NP database which hinders speed of delivery. Also, most countries

	don't allow for intermodal portability which makes the numbering system highly inefficient.
Question 4.2: What are your views on sharing the functionality of a common numbering database for CLI authentication to also support improvements in UK porting processes?	Fico • Concerned about the security access to the database for multiple purposes. Who manages this and what disaster recovery capabilities will be in place? Neustar • it is a possibility where the numbering database for CLI can at least hold the last ported Carrier of Record (COR). MEF notes • The two functions are separate, though integration is important. • The two don't need to be brought together as they are carrying out different functions
Question 4.3: We are currently supporting a blockchain pilot. Do you have any views on using this technology for port transactions and a routing database? Are there other alternatives that should be considered?	Fico • N/C Neustar • Using blockchain for port and routing information can be a good idea for countries like UK and Japan since there is no centralized database in the first place. The biggest barrier to this may be the operators ability to share the data in the ledger.
Question 4.4: What are your views on implementation timeframes and the importance of a common database solution being available to support the migration of telephony services to IP?	Fico • OK Neustar • The rest of the world has been gradually moving towards this goal but they have the advantage of a centralized NP database. Maybe Blockchain can help in case of UK and Japan. MEF notes • Timeframe could be overly ambitious, and it could take longer.
Question 5.1: What are your views on the potential for a common database solution to also provide shared functionality to support number management?	Fico • Concern about the security access for a single db being used for multiple purposes. Neustar • Currently some companies provide this type of numbering plan database. It is used predominantly for finding the routing capabilities on non-ported telephone numbers. MEF notes • Access controls drive greater dependency on security
Question 5.2: What	Fico

do you see as the benefits or disbenefits of changes to number management post PSTN retirement?	• Benefit: single view of number ownership and usage.
	Neustar
	• Some benefits are:
	  ○ The VoIP numbers will have more features which PSTN doesn't provide
	  ○ There will be a huge supply of Fixed line numbers available to be recycled for VoIP consumption
	MEF notes
	• Allows better visibility of use and allocation of numbers and greater granularity in allocation.

Question 6.1: Do you agree, in principle, with the need to develop and adopt a common numbering database? If not, why not?	Fico • Yes agree Neustar • There are already private efforts to develop numbering plan databases to help with finding the routing capabilities on non-ported telephone numbers. Hiya: • Yes agreed in principle MEF • MEF agrees it is a sensible proposal
Question 6.2: If you do not agree with the need to develop and adopt a common numbering database, do you have any suggestions on how the issues we have set out in this consultation could be addressed?	Fico • N/C Neustar • Agree with the need to develop common numbering database.
Question 6.3: Do you agree that in the first instance industry should lead the implementation of a common numbering database, with Ofcom providing support to convene and coordinate key activities? If not, what are your views on how implementation should be taken forward?	Fico • Yes agree Neustar • Currently some companies provide this type of numbering plan database. It is used predominantly for finding the routing capabilities on non-ported telephone numbers. MEF • Yes agree – it would be beneficial if OFCOM could set expectations on Industry in terms of goals and timeline/milestones.