



Teralight's
Teranet Test Solution for
Bypass Fraud Detection

“Assuring Your Revenue”

www.TERALIGHT.com

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BYPASS FRAUD



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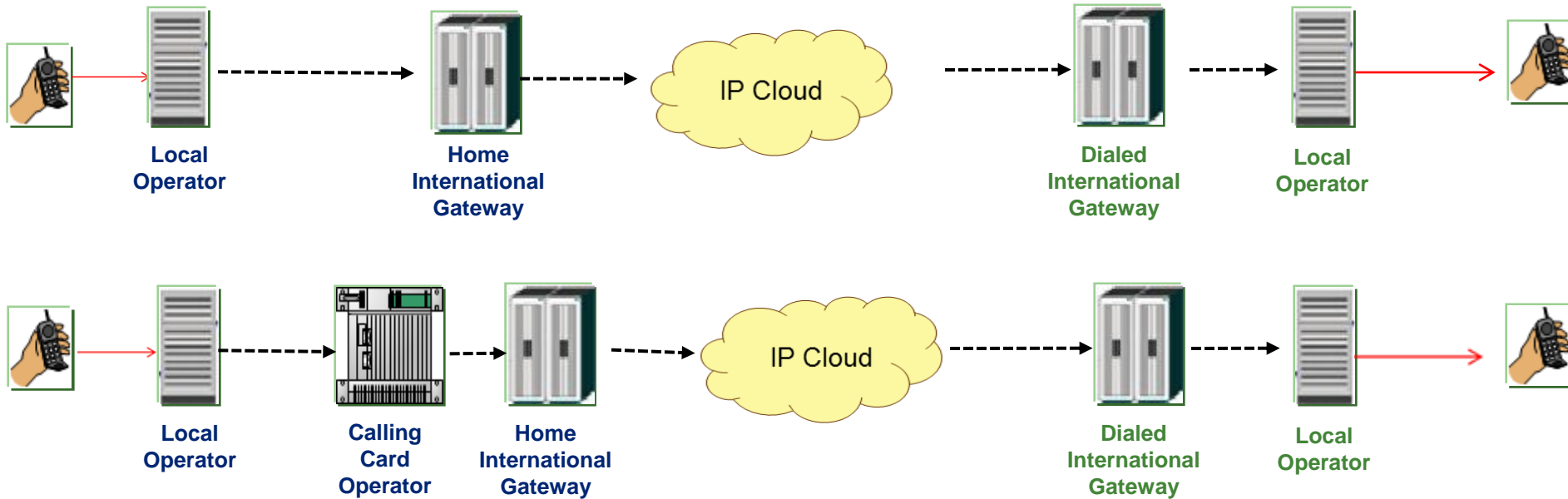
What is Bypass Fraud?

- ✓ The term 'SIM Box Fraud' is synonymous with 'Bypass Fraud'.
- ✓ The 'Grey Market' is mainly the outcome of 'Voice' traffic over the Internet, when the Operator does not have adequate safeguards to stop the illegal routing of calls.
- ✓ The objective of the grey route operator is to bypass the International gateway using a Sim Box.
- ✓ Bypass fraud brings mobile traffic into a country and then has it appear as domestic originated traffic.
- ✓ Grey routes have become more prevalent in the last few years as a result of the increase in mobile voice traffic and available technology to deploy mobile network bypass processes.
- ✓ Bypass still exists on fixed line networks, however as stated above, the use of SIM Box Fraud has greatly increased due to higher mobile voice traffic, profitability, and ease of SIM Box Bypass deployment.

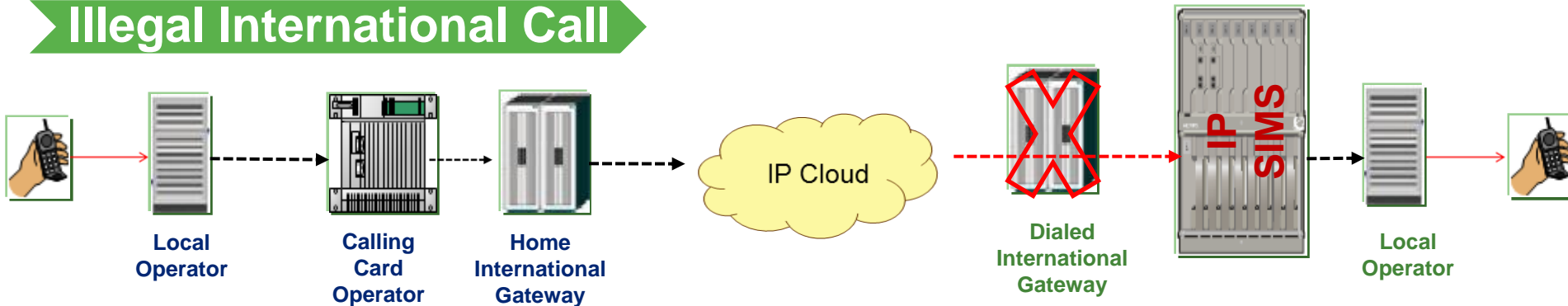


How it Works... Bypass Fraud

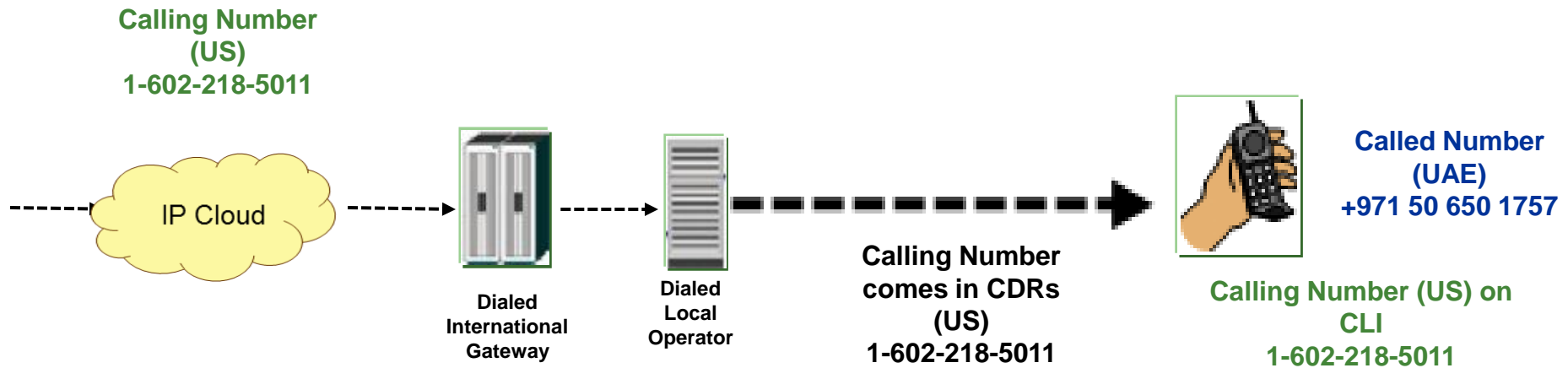
Legal International Call



Illegal International Call



Legal Call Termination



- Operator sees it as International Call
- Operator charges it as international Call
- No Revenue Loss

Bypass Fraud

Calling Number
(US)
1-602-218-5011



Bypassed



International
Gateway



Calling Number
(US)
1-602-218-5011

Calling Number
Changed

Calling Number
(UAE)
055-xxx xxxx

Calling Number
(UAE) in CDR
055-xxx xxxx



Local
Operator

Called Number
(UAE)
+971 55 xxx xxxx



Calling Number
(UAE) in CLI
055-xxx xxxx

- Operator sees it as Domestic Call
- Operator charges it as Domestic Call
- Huge Revenue Loss

Operator 'Bypass Fraud' Problems

- ✓ **Poor Voice Quality - Due to extra compression over IP.**
- ✓ **Mobile Spectrum Congestion.**
- ✓ **Short Duration Calls.**
- ✓ **Increase in Call Drops.**
- ✓ **Wrong CLI or no CLI ends up in an inability to call back.
– Resulting in loss of revenue.**
- ✓ **High Post Dial Delay (PDD), giving an impression of bad QOS.
(Quality Of Service)**
- ✓ **Tremendous loss of revenue because the origination of roaming calls are masked and misidentified using SIM Box technology.**
- ✓ **Creates greater load, hidden traffic and loss of revenue because operator bills these calls as having been originated locally.**
- ✓ **Creates a substantially great loss of revenue due to the “on and off” calls from the adjacent Operator.**



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It Pays To Fight Bypass Fraud!

In a country with as few as
only 20 'Grey Route' operators...

You could be losing
close to 45 million dollars
every year to SIM Box Fraud.

While your network services these calls
resulting in operator bypass fraud problems...

- resulting in a much higher loss of revenue!



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REVENUE LOSS CALCULATION



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Revenue Loss Calculation

If the Fraudulent Calls are On-Net

- ✓ With legal International termination rates per minute at 0.10 USD.
- ✓ And wholesale Grey routes available at the rate of 0.057 USD per minute.
- ✓ The calling rate for an on-net call is 0.035 USD per minute.
- ✓ Difference per minute for legal International call termination and on-net call termination is 0.065 USD.
- ✓ The average duration of a call is 4 Minutes.
- ✓ The average 'Busy' hours of a single 'Fraudulent SIM' in a SIMBOX is a minimum of 20 Hours a day.
- ✓ Legal International calls of 20 Hours duration should be charged 120 USD.
- ✓ These calls terminated as on-net calls, are charged at only 42 USD.
- ✓ The average SIM Box contains and is terminating 30 'On-Net' SIMs.
- ✓ Average loss by one Grey route per month with 'On-Net' SIMs is 70,200 USD.

Revenue Loss Calculation

If the Fraudulent Calls are Off-Net

- ✓ With legal International termination rates per minute at 0.10 USD
- ✓ And wholesale Grey routes are available at the rate of 0.057 USD per minute.
- ✓ Calling rate for an off-net call is 0.046 USD per minute.
- ✓ Difference per minute for legal International call termination and off-net call termination is 0.054 USD.
- ✓ The average duration of a call is 4 Minutes.
- ✓ The average 'Busy' hours of a single 'Fraudulent SIM' in a SIMBOX is a minimum of 20 Hours a day.
- ✓ Legal International calls of 20 Hours duration should be charged 120 USD.
- ✓ These calls terminated as off-net calls, are charged at only 55.20 USD.
- ✓ The average SIM Box contains and is terminating 60 off-net SIMs.
- ✓ Average loss by one Grey route per month with off-net SIMs is 116,640 USD.

Revenue Loss Calculation

Summary

- ✓ Total loss for both on-net and off-net SIMs in only one month by a single illegal SIMBOX operator is 186,840 USD.
- ✓ Total loss for both on-net and off-net SIMs in one year by a single illegal SIMBOX operator is 2,242,080 USD.
- ✓ If there are only 20 grey routes in the whole country, then the average revenue loss per year is 44,841,600 USD.

THIS AMOUNTS TO A HUGE LOSS WITH ONLY A FEW GREY ROUTE OPERATORS CONSIDERED!



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BUSINESS GOAL



Business Goal

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- ✓ **Assure Client Revenue.**
- ✓ **Protect these networks served from any potential fraudulent upsurge in their use.**
- ✓ **The business goal is to gradually “clean” incoming traffic terminating through SIM boxes.**
- ✓ **Provide reliable detection of ‘Bypass Fraud’ SIMs.**
- ✓ **Execute an affordable solution for detecting bypass fraud.**
- ✓ **Effectively close the gap between detection and prevention!**

**Return On Investment
Is Over 2000%**



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SOLUTION



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Solution Methodology

- ✓ Discuss, identify, and understand client's requirements.
- ✓ As per the required implementation -- setup the proper licensing of the Prevail application to provide automatic reporting for the customer.
- ✓ Gain non-listed numbers from the client to begin testing.
 - Requires a minimum of 80 numbers.
- ✓ Work with the operator to configure at least 20 numbers on each SIM.
- ✓ Install and configure a GSM box, Caller-ID box and dedicated desktop machine in the home country.
- ✓ Setup test call generator using different POPs as required.
- ✓ Establish and configure most economical calling routes within the routing information of test call generators.
- ✓ Test, evaluate and refine the entire configuration through expert set-up parameters before taking system live.

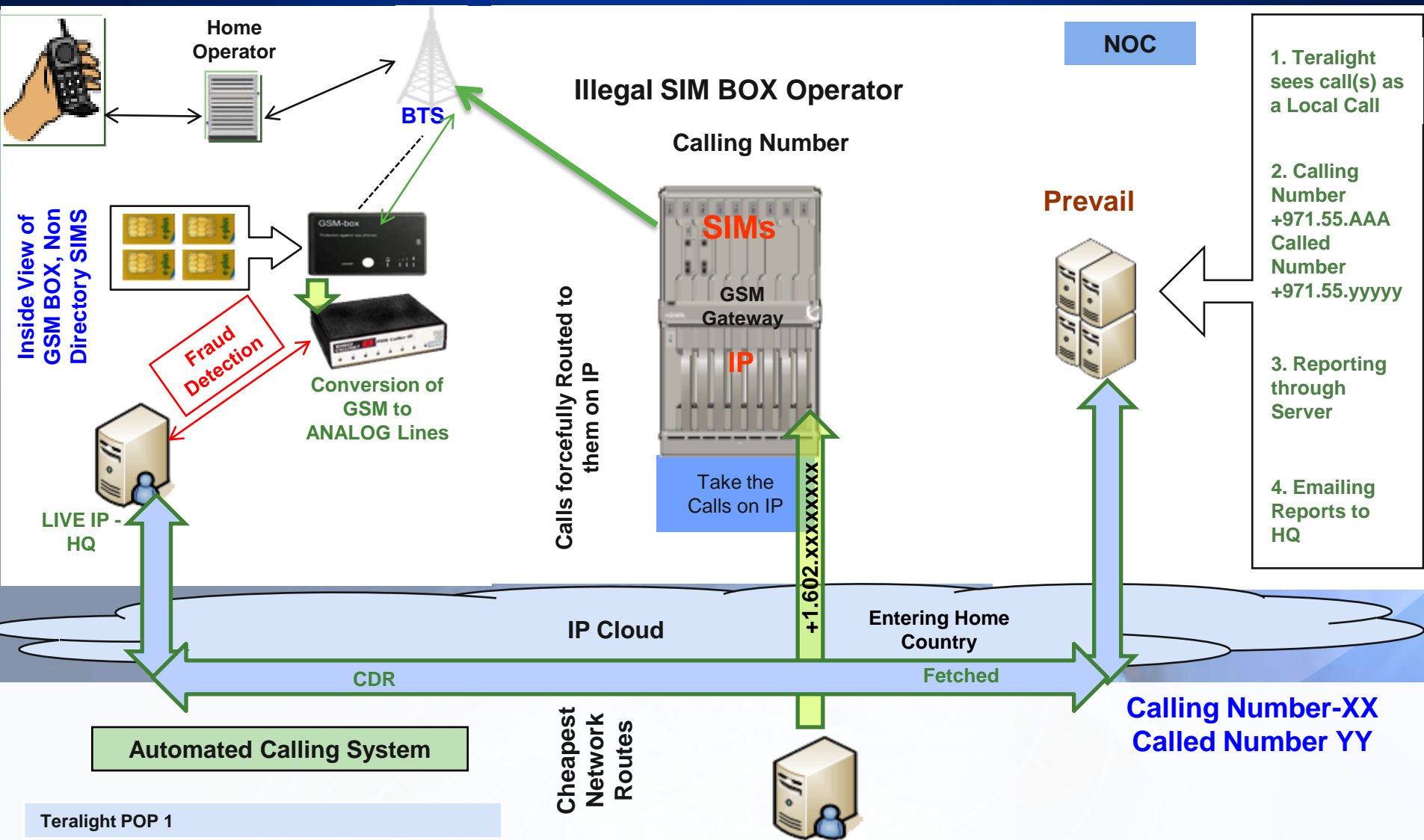


Solution - Flow Methodology

- ✓ Begin to push calls to the operator's non-listed numbers.
- ✓ Prevail retrieves the data from the previously configured CPU storing the Call Data Records (CDRs).
- ✓ Prevail processes the data in real-time and then sends automatic reports via email to the client operator.
- ✓ In the Prevail reports, any 'Calling' number with a local CLI would be identified as a potential grey route and be flagged in the report.
- ✓ After the submission of the report by the Prevail system, the operator's system blocks the number within two hours time. This forces the 'Grey Route' operator to change the SIMs within their system. With time the other SIMs are also blocked causing more interruptions in their service.
- ✓ If the 'Fraudulent Number' is from an adjacent operator then they need to be informed by the client to also block the number on their network.
- ✓ Every 24 hours, Prevail generates a summarized report of all numbers detected that day.



Teranet Test Non-Passive ByPass Fraud Solution



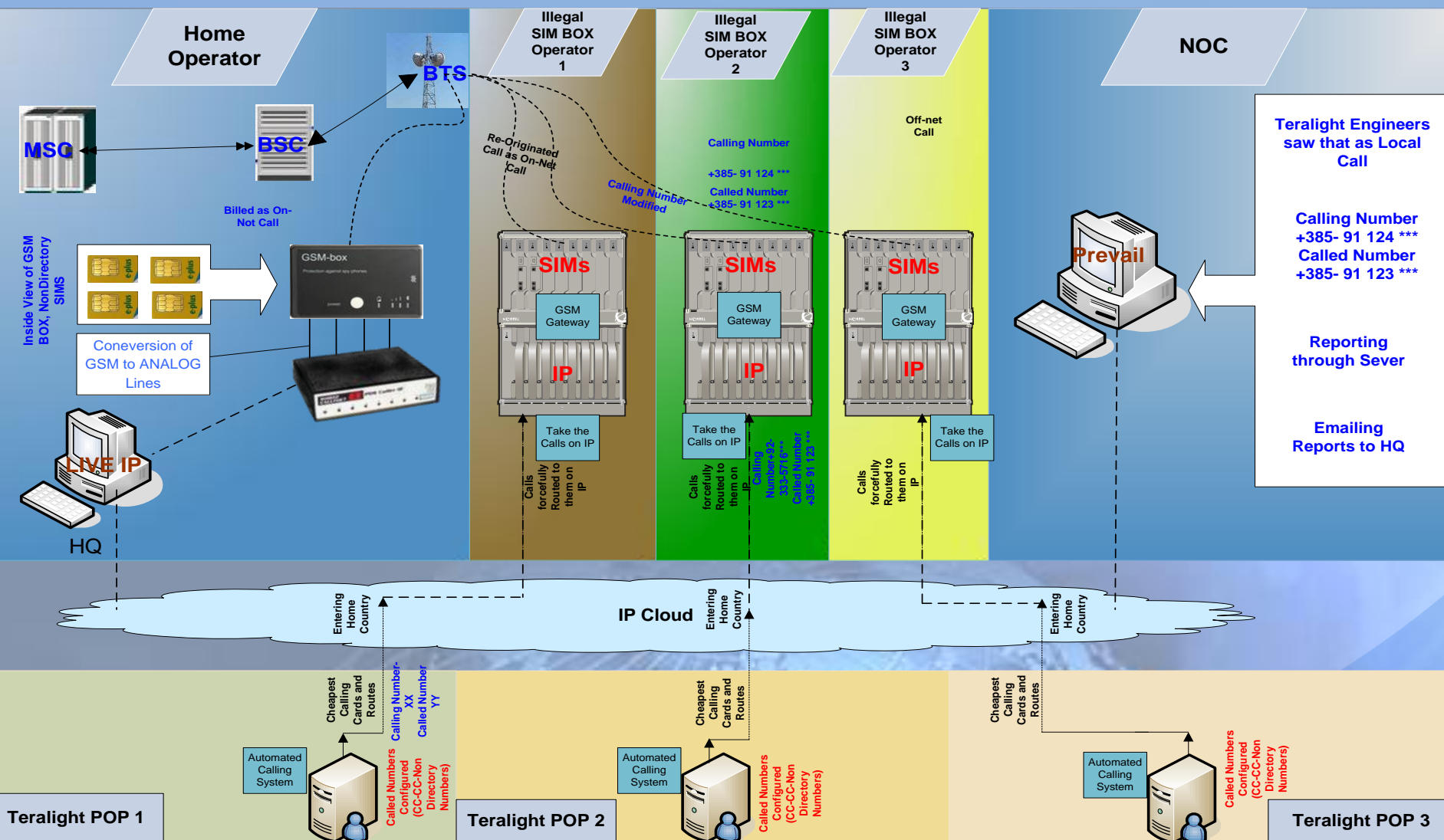
1. Teralight sees call(s) as a Local Call
2. Calling Number +971.55.AAA Called Number +971.55.yyyyy
3. Reporting through Server
4. Emailing Reports to HQ

COMMENTS

- XX is Calling Number from our POP as proper International Number.
- YY is Called Number of the Home Operator which is Non-Listed Number.
- AA is the modified Calling number by Illegal SIM BOX Operator to show it as local Call



Non-Passive By-Pass Fraud Detection Solution Guardian

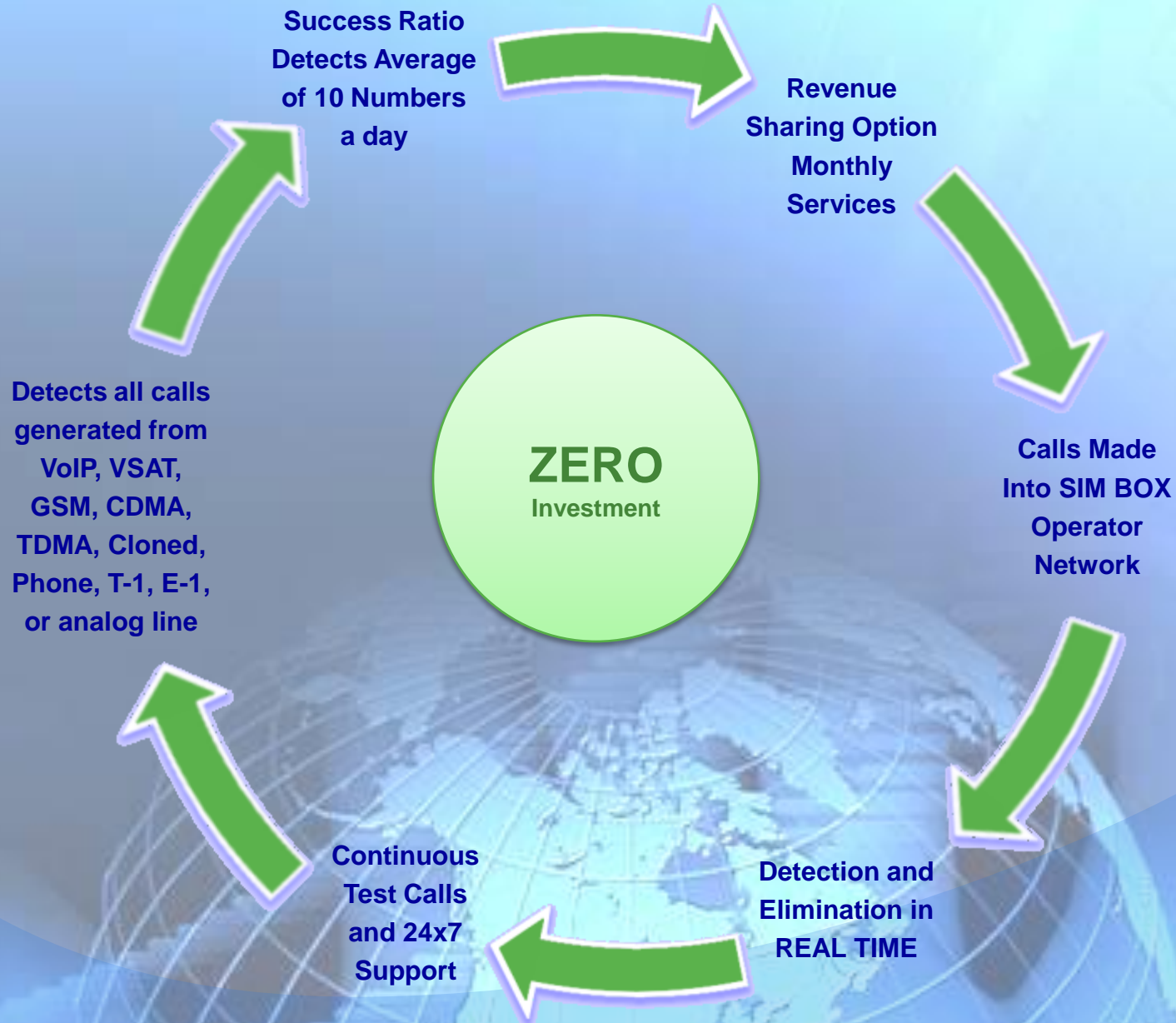


COMMENTS

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Advantages



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Q&A

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ABOUT TERALIGHT

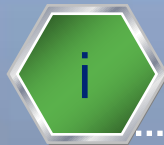


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About Teralight

Teralight Ltd.

- Established in 1998 and Headquartered in Dubai



Management Consulting

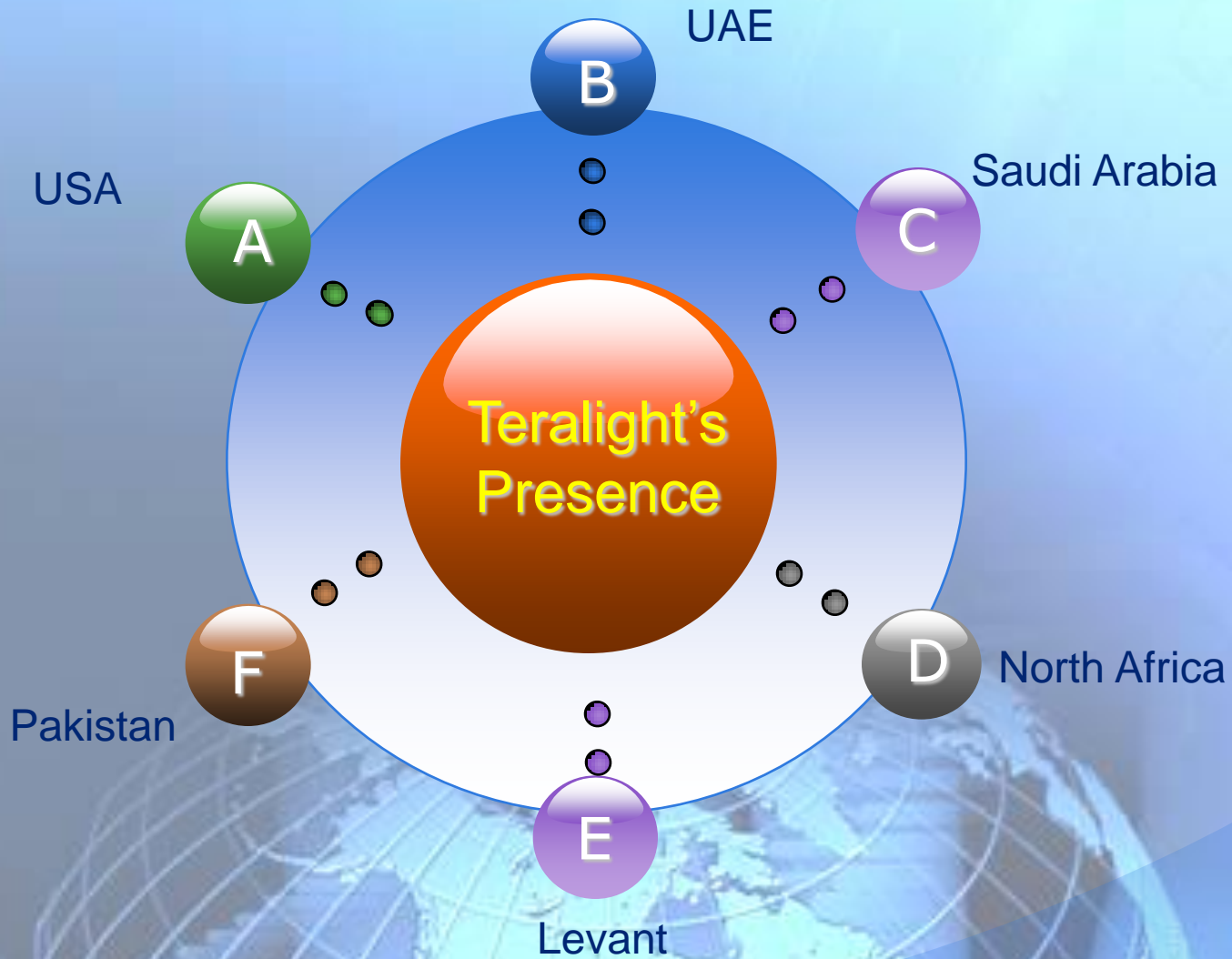


Telecommunications Products



Telecommunications Services

Teralight's Presence



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