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Capitalizing on
Collective Intelligence

OTT, Virtual Carriers and the new wave of spam threats in the 4G/LTE World

SESSION ID: MBS-W04A

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Big Statements

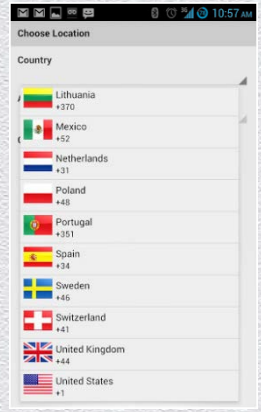
- Mobile Spam in North America – originating from “Main” operators is collapsing
  - Better defenses, technology & intelligence
  - Collaboration (Operators, Industry, Law Enforcement)

- Mobile Spammers are now switching to other routes to your handset
  - VoIP / Virtual Carriers now preferred
  - Other less well protected interfaces

Getting new accounts from Virtual Carriers is trivial

On Handset Apps

- Pick your country & city of choice for snow-shoe accounts
- No Physical SIM card / device required



Bulk Sending API's even easier

- API's commonly available

JSON | XML | **PHP** | Python | C# | Java | Ruby | Node.js

```
<?php
// Get the PHP helper library from *****.com/docs/php/install
require_once('/path/to/*****-php/Services/*****.php');
// Your Account Sid and Auth Token
$sid = "********************";
$token = "{{ auth_token }}";
$client = new Services_*****($sid, $token);
$client->account->messages->sendMessage($snowshoeaccountnumber,
$target_list , "Spam message goes here");
```

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Visualizing Spam Attacks from these sources

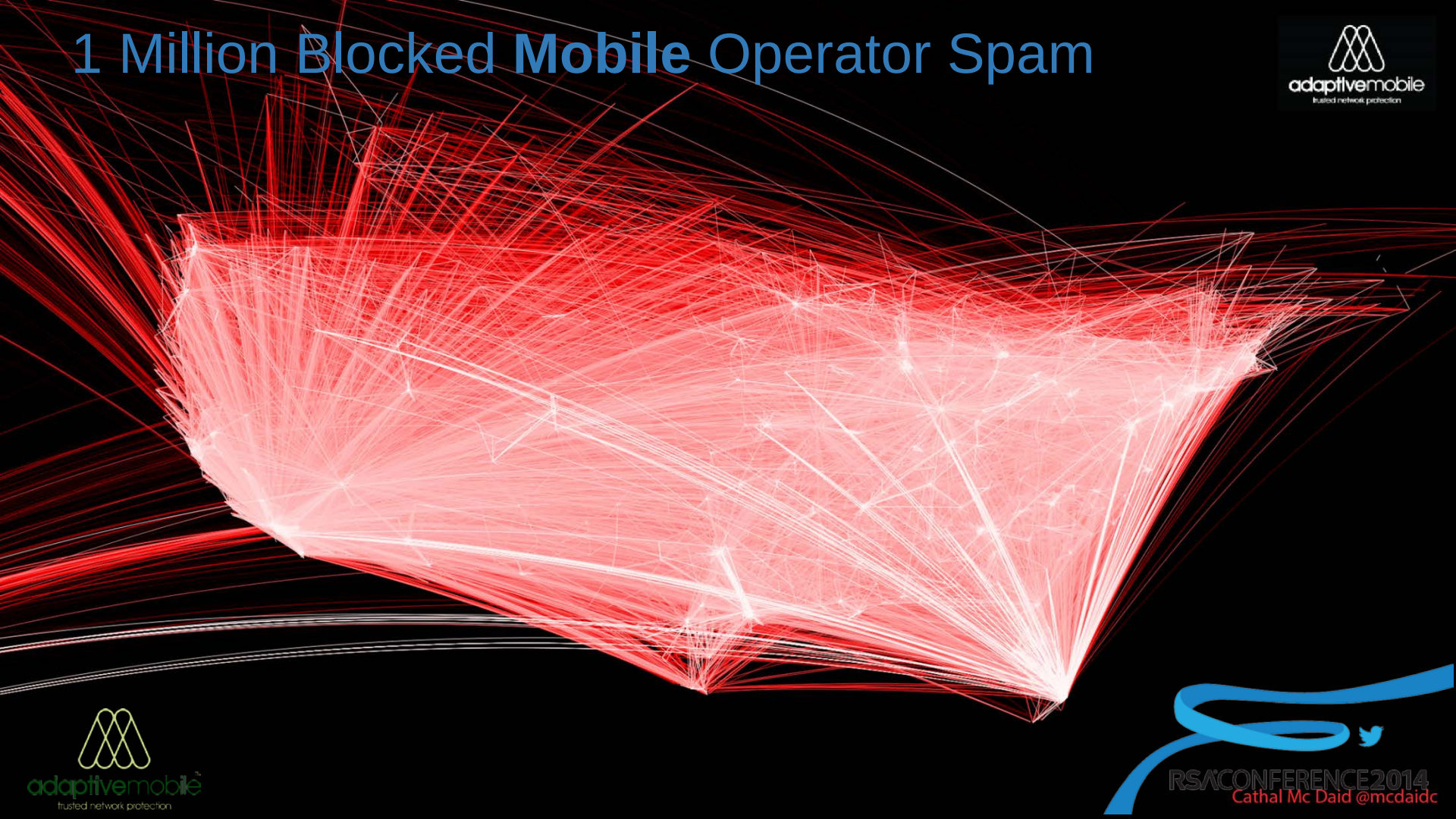
From “Main” Mobile Operators

- Messaging attacks should be concentrated / bursty
  - Physical presence (i.e. location) required
  - Account take down motivated by Operators to maintain reputation

From Virtual Operators

- Messaging attacks from VoIP operators should be distributed
  - Lots of accounts possible (to spread attack profile)
  - Multiple sources

1 Million Blocked **Mobile** Operator Spam



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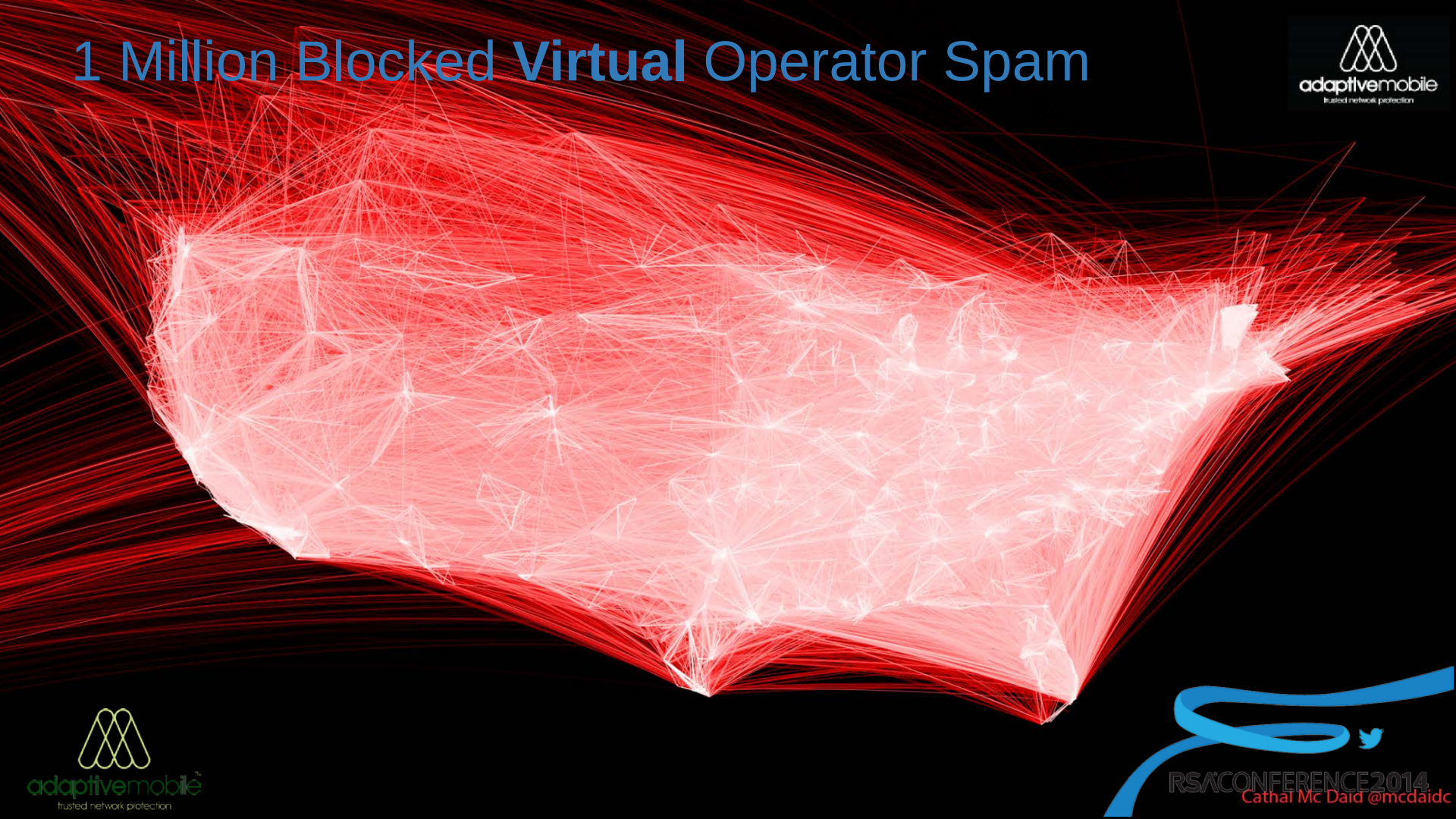
Cathal Mc Daid @mcdaidc

1 Million Blocked **Virtual** Operator Spam



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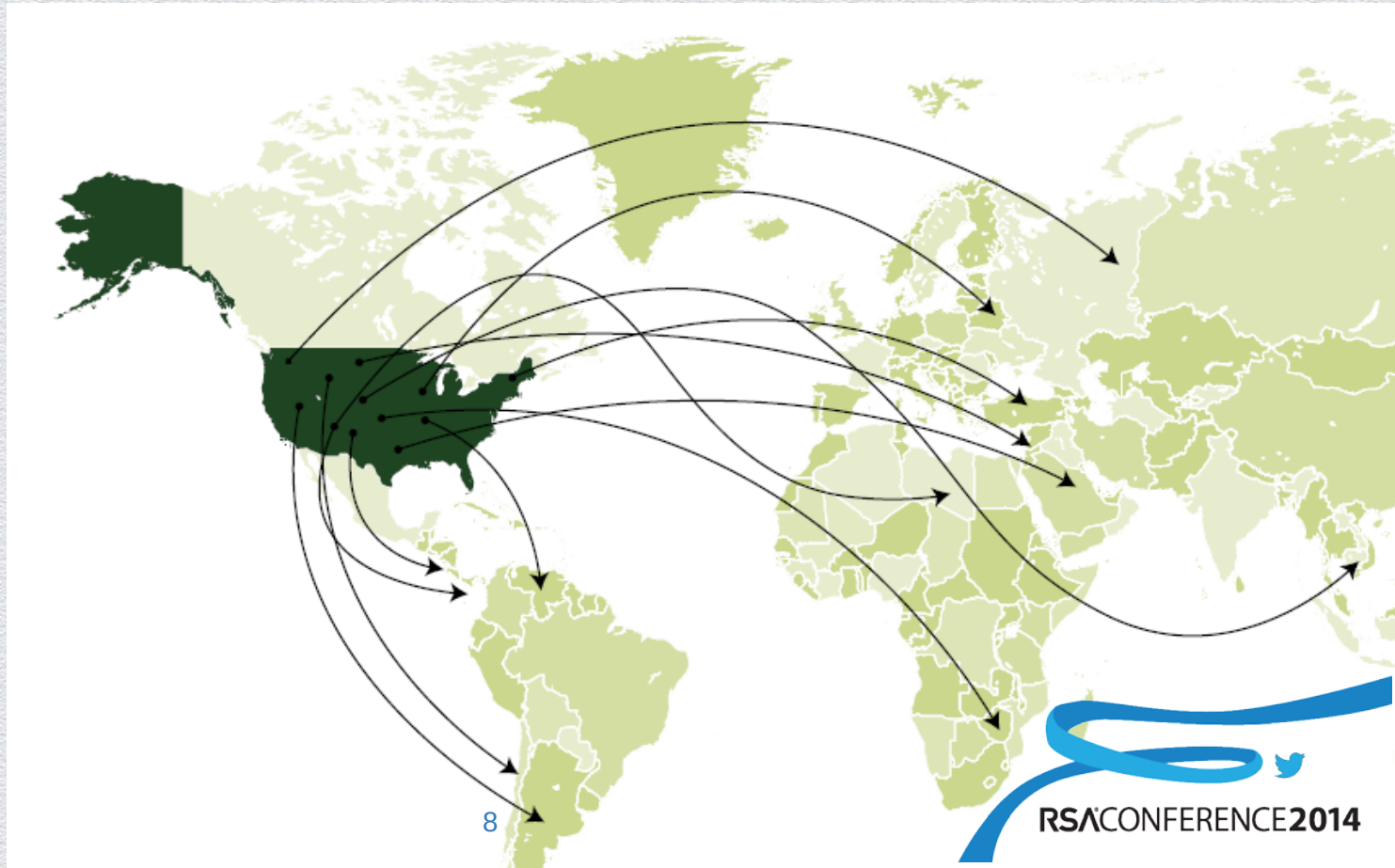
An example of a Local Target Campaign

- High value bank scams
- Using both national & local banks
- Local brands used in focused attacks

Cross border abuse is becoming the norm

Attacks now going to international destinations



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Examples of long range campaigns

Mobile Attacks linked with Hacks

- Highly organized & cross group co-operation
- Profile changes rapidly
  - From new websites
  - To hacked legitimate websites (in conjunction with PC virus)
  - To heavy Redirector usage (Short URLs)
  - To Content Delivery Networks
- From months to years in attack evolution
- Now seeing days in attack type evolution

Compromised Legitimate Sites

Hosted Redirect Sites

Content Delivery Networks

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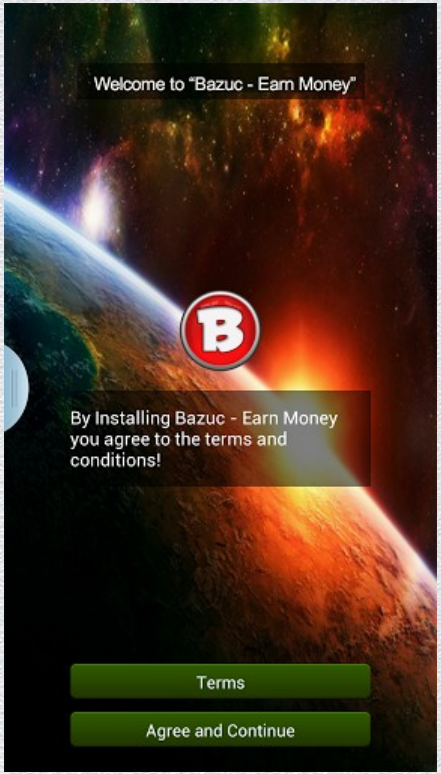
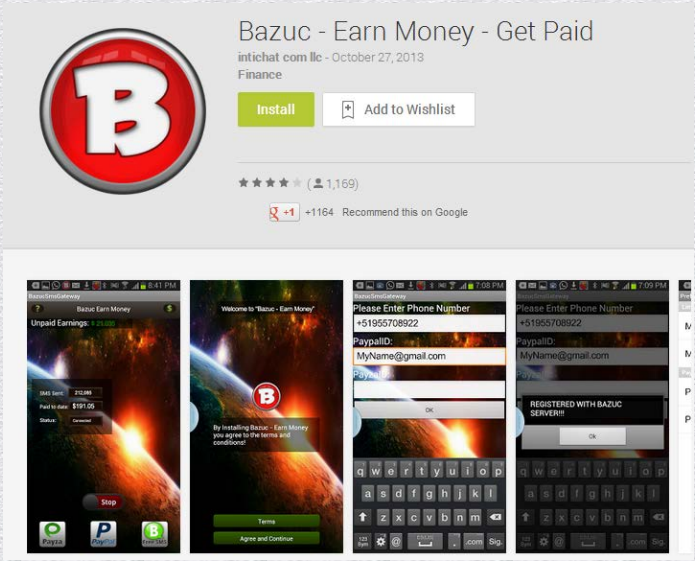
When App Choices affect the Stock Market



Free Android app that **earns you money** by selling your unused SMS credits that come with your monthly phone plan.

$0.001 per SMS sent from user's device



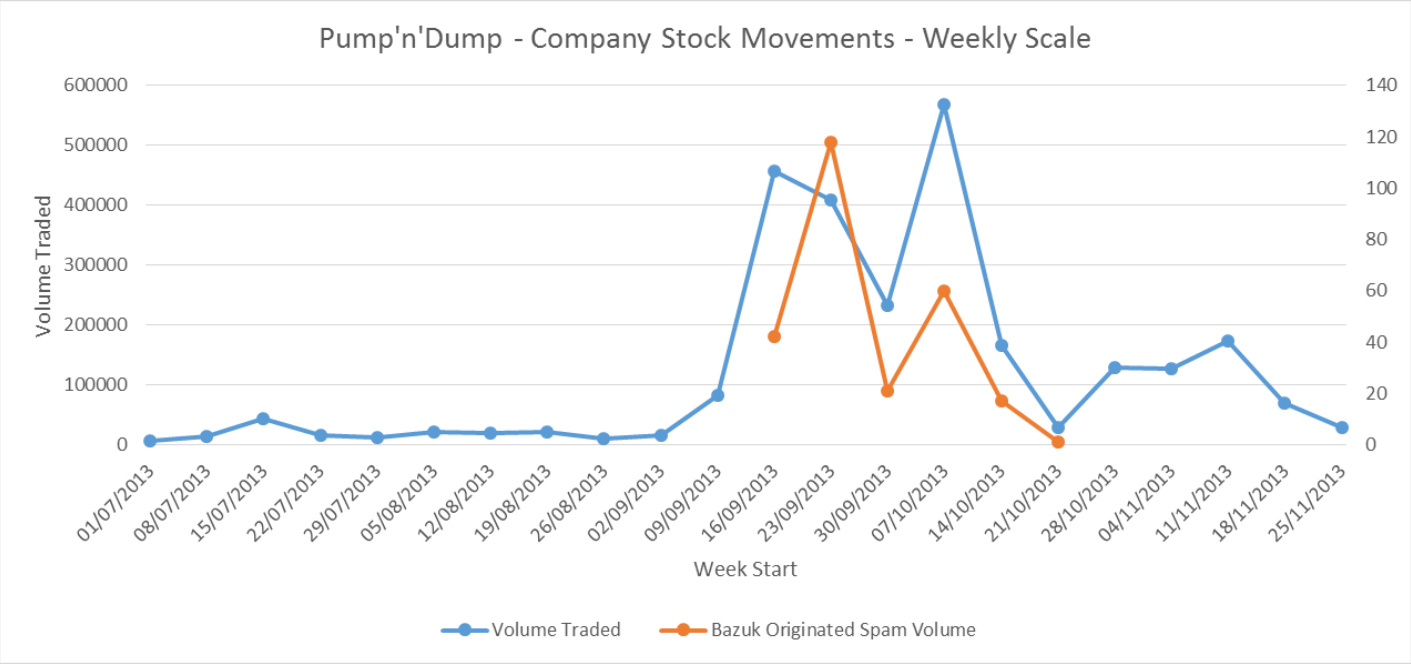
Penny Stock

Mobiles with Bazuc app installed took part in massive (~100k) **Penny Stock** spam in US

Buy Signal Alert – [REDACTED] is hot.
Get in now and look for potential 3000% gain.
www.[REDACTED].com

Geographic Spread of Bazuc-infected phones

Stock Impact



Total Stock traded during July/Aug period: **$31k**

Total Stock traded during Sep/Oct period: **$682k**

This attack has re-emerged this month

LTE Defense

- Spam & Abuse is beatable in mobile networks
- Lessons for the future for RCS/IM Messaging
- However as previous ‘safe havens’ are eliminated,
  Spammers will evolve (by accident or deliberately) to use less well defended inputs
  - **VoIP Carriers**
  - **Shortcodes**
  - **RCS**
- Think of all input points! Spammers will flow through weakest points

Thank You

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