The Required Wisdom of Crowds
This War Will Not Be Won Alone
August 17, 2016
Strength in Numbers

• A faked economic “recovery” has set the stage for a double whammy: increased attacks against pressured IT budgets

• On top of that, many, if not most security products fail to deliver leading to a false sense of security and wasted assets

• Therefore, a new approach is required to have any shot at winning the war and the sharing of information, best practices will emerge as a critical part of any successful strategy
The Economic “Recovery” and the unintended consequences of sustaining the ruse
CARS FOR ALL!

Motor Vehicle Retail Sales: Domestic Autos

\[ y = -0.0236x + 1374.6 \]

Source: US. Bureau of Economic Analysis
HOMES FOR ALL!

ZIP. ZERO. NADA.

Purchase a new townhome at the Villas at Highgate in Upper Macungie Township, and you’ll pay:

• $0 Money Savers* Receive 100% Financing
• $0 Transfer Tax Paid at Settlement – Save Thousands*

Plus, purchase today and you can choose from one of the following, for FREE:

• $0 For A FREE Finished Basement* OR
• $0 For A FREE Upgraded Kitchen Package* OR
• $0 For Paid Closing Costs*

Why pay more? Hurry in NOW – Become A Homeowner Here For Just $1,198. /mo.1*

You always get more at The Villas at Highgate.
• Spacious townhome with 2 BR, up to 2 BA
• Kitchen includes feature package features, high efficiency appliances, large kitchen, pantry, garage
• Grocer financing options available
• Low monthly payment – payments based on your income – make your payments work for you

The Villas at Highgate
1791 Highgate Dr., Emmaus, Pa. 18049 • Lehigh County 610-306-9623

For more information visit us at www.heritagehomesgroup.com

$0 DOWN
FIXED-RATE MORTGAGE*

No PMI Required! Apply Now

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We Are The Lenders...
How’d That Work Out?

In Decline
Homeownership rate, seasonally adjusted

Source: Commerce Department | WSJ.com
College For All!!!

Source: Board of Governors of the Federal Reserve System (US)
research.stlouisfed.org

myf.red/g/4iOA
Figure 1
College-attendance rate for students from low-income families

Here’s Your Diploma and $30,000 Loan Docs

Seven in 10 seniors (69%) who graduated from public and nonprofit colleges in 2014 had student loan debt, with an average of $28,950 per borrower.

State by State Data | The Institute For College Access and Su... ticas.org/posd/map-state-data-2015
The US Govt Bill For All The Programs...

- Share of debt for that child at age 29: $163,452
- Share of debt for that child at age 18: $87,247
- Share of debt for a child born today: $42,759
But They Are Stimulating The Economy!!
The Ultimate Ruse
SO WHAT???
NONE OF IT HAS WORKED

Source: Federal Reserve Bank of St. Louis
research.stlouisfed.org

myf.red/g/3hQc
Jobs Anyone?

Source: US. Bureau of Labor Statistics
Shaded areas indicate US recessions - 2015 research.stlouisfed.org
BTW: Consumers Are ~70% of GDP...
It Used To Be This
But Now It Is This
Some Hit Harder Than Others

Total Unemployment
16-19 Years
20-24 Years
25-54 Years
55 and Over
Revenue Vs. Expenses

- This does not equate
ROI?

Civilian Labor Force Participation Rate: Bachelor's Degree and Higher, 25 years and over

Shaded areas indicate US recessions

Source: US. Bureau of Labor Statistics

fred.stlouisfed.org
What could possibly happen from here that no one saw coming?
THIS Could Happen

People feeling the pinch will vote for change

Even if that change is not going to work...
What does this have to do with cyber security?

Everything.
No job, too much debt...

Somebody’s got to PAY...

Keene, NH
Not Ferguson...
Milwaukee...
Why Take On This?
When you can do this?

From the Comfort of Your Favorite Coffee Shop
Knowledge Is Free. We Are Anonymous. We Are Legion. We Do Not Forgive. We Do Not Forget. Expect Us.
Think You’re Dealing With a Few Geeks?

Anonymous Facebook page network:

Each point (node) in the graph represents a Facebook page which is associated with Anonymous. If page A gives page B a "like", they become connected with a line. Node size represents the amount of "likes" received from others in the network. Colors show different communities. Click on a node or find the page in the search field to see which pages it "liked" ("outgoing") and from which pages it received a "like" ("incoming").

The graph may take some time to load.

Legend:
- Facebook page
- Like
- Community

Search:
Search by name
A bleak picture

Youth unemployment in Europe runs about double that for adults; in some countries half the youth are jobless.

(unemployment rate, percent)

Sources: Eurostat; and IMF staff calculations.
Note: Shading shows the range of youth unemployment rates in euro area countries.

Not Just Here...

“in some countries, half the youth are jobless”
The Cyber Toupee

When $80 Billion is not enough...
  * Dan Geer, Peter Kuper

($170 Billion Should Definitely Do it)

The inherent openness of the Internet has created a problem we can not currently solve
From This...

Let’s Share a Few Files!

Led to this...

THE ARPA NETWORK

DEC 1969

4 NODES
To Defending Against This
$170BN by 2020? Still Not Enough

Record, Rapid Spend

World-wide Cybersecurity Market (Gartner)

- CAGR 9.8%
- 2015: $75.4B
- 2020: $170B

Unmitigated Failures

Legacy Security Approaches

Record, Rapid Spend

World-wide Cybersecurity Market (Gartner)

- CAGR 9.8%
- 2015: $75.4B
- 2020: $170B

Unmitigated Failures

Legacy Security Approaches
An Unrelenting Adversary

- **AT&T Cybersecurity Insights Report**
  - 458% increase in search for IoT vulnerabilities

- **Dell Security Annual Threat Report**
  - Malware attacks doubled to 8.19B

- **IBM X-Force Cyber Security Intelligence Index Report**
  - 60% of all attacks suffered by IBM customers were carried out by ‘insiders’

- **Symantec Internet Security Threat Report**
  - 55% increase in spear-phishing campaigns

- **Verizon Data Breach Investigation Report**
  - 89% of all attacks involve financial or espionage motivations
VCs Love Cyber

2015 outpaced 2014 by $1.1B

Source: CB Insights, Momentum Partners
### No Shortage of Choices

#### Network & Endpoint Protection
- Arbor Networks
- CounterTack
- Kaspersky
- Eset
- Lancope
- Security
- McAfee
- Microsoft
- Palo Alto Networks
- Proofpoint
- FireEye
- ForeScout
- Radware
- Sophos
- Fortinet
- Blue Coat
- Br
- Bromium
- CA
- HP
- IBM
- Tripwire
- Symantec
- IMPerva
- VA
- WatchGuard
- Catbird
- Check Point
- Infoblox
- Invincea
- Cloudflare
- Juniper Networks

#### Logging & Monitoring
- Airwatch
- Juniper Networks
- Alert Logic
- Net Optics
- Gigamon
- NetIQ

#### Authentication & Identity Management
- BeyondTrust
- Entrust
- CyberArk
- RSA
- CA
- NARUS
- Cisco
- Ping Identity

#### Security Operations
- Nessus
- Nia
- PhishMe
- Qualys
- Rapid7
- Red Seal
- Reversing Labs
- Cisco
- Qualys
- Skybox

#### Cloud Security
- AlephCloud
- Proofpoint
- PubNub
- Skyhigh
- Virtru
- CloudPassage
- MobileIron
- Cloudflare
- Juniper Networks

#### Security Analytics
- Agiliance
- Bit9
- BeS皇后
- Guardicore
- LogRhythm
- Splunk
- Sumologic
- Symantec

#### Threat Intelligence
- AlienVault
- Tenable
- Malcovery Security
- Norse
- OpenDNS
- FireEye
- DAMBalla
- SANS

#### Information Security
- RSA
- App Authority
- Covetrity
- IMPerva
- Shedge
- Veracode
- Vormetric
- Voltage Security
- IONIC Security

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But, Is There Really a Choice?

Still Getting Owned:

Cost of Cybercrime

Over $2 trillion by 2019

With Less Resources:

Skills Gap

Shortfall by 1.5 million by 2019

- Juniper Research Report 2016
Cyber Spend Highest for Outsourced Services

World-wide Cybersecurity Market (Gartner)

- CAGR 9.8%
- 2015: $75.4B
- 2020: $170B

IDC’s Hot Areas (% Growth)

<table>
<thead>
<tr>
<th>Area</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security Analytics / SIEM</td>
<td>10%</td>
</tr>
<tr>
<td>Threat Intelligence</td>
<td>10%</td>
</tr>
<tr>
<td>Mobile Security</td>
<td>18%</td>
</tr>
<tr>
<td>Cloud Security</td>
<td>50%</td>
</tr>
</tbody>
</table>

Source: 451 Group, Crunchbase, Momentum Partners

Just one little issue...
In CBO’s projections, that debt rises to 86 percent of GDP in 2026 and to 141 percent in 2046—exceeding the historical peak of 106 percent that occurred just after World War II. The prospect of such large debt poses substantial risks for the nation and presents policymakers with significant challenges.
Stock Prices Need EPS to Stay Afloat

If revenues fall, expenses will too...

S&P 500 Price-to-Earnings Ratio
2003 - 2016

Current P/E = 20.5
Average = 16.4

Sources: Standard & Poor’s, Model Capital Management LLC
Meanwhile, Market Catalysts Run Unabated...

- Mobile Workforce
- SaaS First
- Agile-Ops
- Shift to Public & Hybrid Cloud
- Globalization
- Commoditization
- Elastic Scalability
- Software Defined Infrastructure
While Attacks Evolve, Shift to Exploit Unabashed

• Malware is morphic
  • Signatures are essentially useless here
  • As are sandboxes

• And hundreds of billions of cumulative investment have failed to win the war

• We must incorporate new approaches
  • Outsource
  • Crowdsouce
  • Other collective/predictive efforts are severely underutilized
Forecast IT Security Spend by Category Supports Our View

GAMe Theory: Strength in Numbers

• Don’t Fight Battles, Win the War
  • You are not going to win this alone
  • Don’t even bother thinking other wise...

• Strength in critical mass means outsourcing
  • Google, Amazon, Microsoft and others will always have more resources than any one organization

• Defending the real perimeter – the ENDPOINT – is where the direct efforts should be made
  • Servers, Desktops, Laptops, Tablets, Smartphones are all accessing the data so focus there
The GAMe is Already Afoot! (And Years Underway)

• Google
  • Postini $625MM acquisition 2007
  • Virus Total Acquisition 2012
  • Google Poaches Sophos CTO Gerhard Eschelbeck (Nov. 2014)

• Amazon
  • Going early stage: part of $45MM investment in Ionic Security (2016)
  • Recent job post: “We dive deep into security technologies such as new authentication systems, hardware security components, cryptography, system hardening, and massive-scale audit analysis."

• Microsoft
  • Billions in cyber acquisitions since 1999
  • Microsoft Invested $1 Billion In 'Holistic' Security Strategy (2015)
  • Cyber Defense Operations Center (2016)

• Endpoint – Focus Your $$ Here...the big guys have BILLIONS elsewhere
If You Think You Can Win the War...

You ain’t seen nothing yet...
It’s a Brave New World Out There
It Used To Be This
But Now It Is This
GROWTH IN THE INTERNET OF THINGS
THE NUMBER OF CONNECTED DEVICES WILL EXCEED 50 BILLION BY 2020
## All Together Now - $30 TRILLION!!

<table>
<thead>
<tr>
<th>Disruptive technology</th>
<th>Potential Economic Impact ($ Trillion, Annual)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
</tr>
<tr>
<td>Automation of knowledge work</td>
<td>$5.2</td>
</tr>
<tr>
<td>Advanced Robotics</td>
<td>$1.7</td>
</tr>
<tr>
<td>Autonomous vehicles</td>
<td>$0.2</td>
</tr>
<tr>
<td>The Internet of Things</td>
<td>$2.7</td>
</tr>
<tr>
<td>Mobile Internet</td>
<td>$3.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$13.50</strong></td>
</tr>
</tbody>
</table>

Source: McKinsey Consulting
BTW – This Is A Very Good Thing

• Technology has led to amazing advancements for the human race

• And, in general, the world

• Embracing the change is the only play
It Used to Be This

Jacob Cox-Brown
2 hours ago

Drivin drunk... classsic ;) but to whoever's vehicle i hit i am sorry. :P
But Now It Is This (Almost...)

![Image of a self-driving car](image-url)
It Is Only A Matter of Time
• Rio Tinto has started using automated, driverless trucks to move iron ore in its Pilbara mines, controlled from an operations center 1,200 kilometers away in Perth.
Studies estimate that the Internet economy annually generates between $2 trillion and $3 trillion, a share of the global economy that is expected to grow rapidly.

If our estimates are right, cybercrime extracts between 15% and 20% of the value created by the Internet.”

Juniper Research predicted that losses from data breaches to reach $2.1 trillion globally by 2019, increasing to almost four times the estimated cost of breaches in 2015.

Source: Center for Strategic and International Studies, June 2014, Juniper 2016
Commerce via Internet Up Dramatically = @ 9% of Retail Sales vs. <1% in 1998

E-Commerce as % of Total Retail Sales, USA, 1998 – 2014

$300B+ of Spend

Source: Forrester
Physical Device, Online Purchase

BTW – online reservations > 276,000 within 72 hours

...And rumored to be over 400,000 currently
**THIS Needs To Happen:**

• Simply put, there is too much at risk for Cyber Security to remain a losing proposition
  • And it will only increase over time

• Innovation, Investment is our **ONLY** way out of this mess

• Mess = >$6 Trillion in theft

Verizon DBIR 2015
And That’s Problematic Because...

EVERYTHING

of value is already online in one form or another

And we better start concentrating on where the real crime is growing
So, Where Do I Focus???
Main Focus Areas – Things You Can Control

Digital Intelligence

Trusted Compute

Secure DevOps
Determine what it *is*, what it’s *doing*, if I *care*, and what I should *do* about it.

**Market Trends**
- Cyber Discovers Math
- Honeypots Rebooted
- Digital Discovery
- Automation

**Challenges**
- Situational (un)Awareness
- Data Explosion
- Internet of Everything
The computer is here to stay, therefore it must be kept in its proper place as a tool and a slave, or we will become sorcerer's apprentices, with data data everywhere and not a thought to think.

— Jesse Shera —
Data Deluge, But Little Real Information

- Data is a means to an end
- Actionable information is what matters
- Define: Actionable?

- Situational (un)Awareness
- Data Explosion
- Internet of Everything
Actions? Mostly All The Wrong Places

What are the most significant drivers behind your spending on information security?

- Protection of sensitive data
- Regulatory compliance
- Reducing incidents and breaches
- Protection of intellectual property
- Alignment with organizational and IT strategic planning
- Protecting brand reputation
- Reducing attack surface
- Improving visibility into security operations
- New, advanced threats and techniques
- End user education and awareness
- Improving incident response

2016 SANS Data

NOT SECURITY!!!

IS SECURITY!!!!
ROA

Return On Assets?

• Actually:
  • Reduce Attack Surface
    • Focus on Key attack vectors
  • Outsource Everything
    • Open Source/Commoditize all else
  • Automate Wherever Possible
    • Augment automation with Intelligence
Reduce Attack Surface
1. Reduce Attack Surface Area

- Cybercrime (25.1% DBIR Attacks): Close the window!
  - Web Browser – why let “stupid” roam wild?
    - Hosted browser ideal (an AWS-like baby-step)
    - At least DOM strip
  - Endpoint - AV is DEAD... Finally
    - See: Cylance, CounterTack, Confer, Digital Immunity, etc.
    - See incumbents promoting everything other than sigs

- Insider Misuse (20.6% DBIR Attacks): SIEM meets BI
  - Model patterns in real time for proactive defense, not forensics

- But Where is YOUR Spend actually going?
The Endpoint is The Perimeter

• It’s where the data is accessed so focus there
• Over $1.5BN raised by endpoint providers in the past 12 months
  • Tons of $$ to propel innovative approaches gives organizations a fighting chance
    • Just last month, Cylance raised $100mm on a $1BN Valuation
• Frenzy of investment gives buyers a competitive advantage
  • Private companies desperate for growth
  • Meanwhile, incumbents petrified of customer attrition
  • Advantage YOU!
• I’ll say it again, ADVANTAGE YOU
Outsource Everything

Lift

Thrust

Drag

Weight
2. Outsource Everything You Can

• Like a plane that is too heavy to take flight, throw everything non-essential out the door

• Yes, **EVERYTHING**

• Define Mission Critical – it probably isn’t what you think

• HR, CRM, Back Office, email, productivity suites, BI, **WEB BROWSER**, etc., etc., etc….. OFF THE PLANE!
Automate Wherever Possible

Risk vs. Cost

- **Cylance**
- **Control Types**
  - RESPOND
  - DETECT
  - PREVENT

- **Risk**
  - Lowest Risk
  - Lowest Cost
  - Limited Liability

- **Cost**
  - Highest Risk
  - Highest Cost
  - Most Liability

- **Control Approaches**


Focus is on Minimizing damage – only variables are time to detect and time to contain

Focus is on Minimizing vulnerability and potential for harm

Where most of the industry is focused

Automated → Semi-Automated → Manual

SUSTAINED PROGRESS
3. Automate Everything Else

• After reduced the attack surface area and outsourcing of the vast majority of apps, automation is required

• **BLOCK**, then investigate...
  • If you aren’t willing to automatically block suspicious activity, you can not possibly win
  • AI/ML, Threat feeds and other drivers for sound automated
  • You (humans) can not compete so don’t even try

• Insider Threat applies here too
  • Things change... and you can’t keep up with everything so, again, don’t try
3.1 Augment With Intelligence
Don’t Be The Last in the Know
Most Useful Application?

Fans: 23 Yards per Play
Coaches: 1.67 Yards per Play
Actionable Intelligence and The Wisdom Of Crowds

• This is not new...
  • 2006: IBM's "Innovation Jam" was attended by over 140,000 international participants and generated approximately 46,000 ideas
  • 2009: The Netflix Prize which asked the crowd to come up with a recommendation algorithm more accurate than Netflix's own algorithm offering a grand prize of US$1,000,000 (Contest winner BellKor's Pragmatic Chaos team bested Netflix's own algorithm for predicting ratings by 10.06%).
  • 2009: DARPA balloon experiment, where DARPA placed 10 balloon markers across the United States and challenged teams to compete to be the first to report the location of all the balloons. (MIT won the event, in less than nine hours)
  • 2012: Tag Challenge, funded by the US State Department, required locating and photographing individuals in 5 cities in the US and Europe within 12 hours based only on a single photograph.

But it is not without its issues, especially as it pertains to cyber
Using Prediction Markets to Enhance US Intelligence Capabilities

A "Standard & Poors 500 Index" for Intelligence

Puong Fei Yeh

In 2001, the Defense Advanced Research Project Agency (DARPA) started experimenting with methods for applying market-based concepts to intelligence. One such project, DARPA's Future Markets Applied to Prediction (FutureMAP) program tested whether prediction markets, markets in which people bet on the likelihood of future events, could be used to improve upon existing approaches to preparing strategic intelligence. The program was cancelled in the summer of 2003 under a barrage of congressional criticism. Senators Ron Wyden and Byron Dorgan accused the Pentagon of wasting taxpayer dollars on “terrorism betting parlors,” and that “Spending millions of dollars on some kind of fantasy league terror game is absurd and, frankly, ought to make every American angry.”

Americans need not have been angry about FutureMAP. It was neither a terrorism betting parlor nor a fantasy league. Rather, it was an experiment to see whether market-generated predictions could improve upon conventional approaches to forecasting. Since 1998, traders in the Iowa Electronic Markets have been betting with remarkable accuracy on the likely winner of the US presidential elections. Eli Lilly, a major pharmaceutical company, found that prediction markets outdid conventional methods in forecasting outcomes of drug research and development efforts. Google recently announced that it was using prediction markets to forecast product launch dates, new office openings, and many other things of strategic importance.
Like Any Research, Controls Are Required

James Surowiecki, author of *The Wisdom of Crowds: Why the Many Are Smarter Than the Few and How Collective Wisdom Shapes Business, Economies, Societies and Nations*, suggested three criteria to address gathering bias:

- Keep your ties loose.
- Keep yourself exposed to as many diverse sources of information as possible.
- Make groups that range across hierarchies.

For cyber, Surowiecki advocated extensions of the existing futures markets even into areas such as terrorist activity and prediction markets within companies.

Cyber Index Brought to You By Dan Geer

Continuously compounded rate of change (month over month)
Red line describes mean since inception

Index value

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See the future...

Revealing Ransomware Secrets With All-Source Analysis

Posted in Cyber Threat Intelligence by Amanda McKeon on August 10, 2016

Ransomware has become a major concern. Stay ahead of ransomware threats by using Recorded Future as part of a holistic threat intelligence capability.
Crowdsourcing is a way of solving problems and producing things by connecting online with people that you otherwise wouldn’t know
Market is Evolving

418 Intelligence is developing a gamified and monetized advanced prediction market platform for enterprises that are struggling to stay on top of the hyper-expanding job of cybersecurity to incentivize and score security analysts from inside and out in providing them accurate on-demand assessments of threat risks and trend impacts that are actionable in real time.

On-demand intelligence to act before damage is done

Erasing uncertainty and inaction in cyber risk management.

LEARN MORE
Sources

Most of the resources listed below provide lists and/or APIs to obtain (hopefully) up-to-date information with regards to threats. Some consider these sources as threat intelligence, opinions differ however. A certain amount of (domain- or business-specific) analysis is necessary to create true threat intelligence.

<table>
<thead>
<tr>
<th>Source</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AutoShun</td>
<td>A public service offering at most 2000 malicious IPs and some more resources.</td>
</tr>
<tr>
<td>Critical Stack Intel</td>
<td>The free threat intelligence parsed and aggregated by Critical Stack is ready for use in any Bro production system. You can specify which feeds you trust and want to ingest.</td>
</tr>
<tr>
<td>C1fApp</td>
<td>C1fApp is a threat feed aggregation application, providing a single feed, both Open Source and private. Provides statistics dashboard, open API for search and is been running for a few years now. Searches are on historical data.</td>
</tr>
<tr>
<td>Cymon</td>
<td>Cymon is an aggregator of indicators from multiple sources with history, so you have a single interface to multiple threat feeds. It also provides an API to search a database along with a pretty web interface.</td>
</tr>
<tr>
<td>Deepviz Threat Intel</td>
<td>Deepviz offers a sandbox for analyzing malware and has an API available with threat intelligence harvested from the sandbox.</td>
</tr>
<tr>
<td>Emerging Threats</td>
<td>A collection of rules for several types of firewalls, including iptables, PF and PIX.</td>
</tr>
<tr>
<td>Firewall Rules</td>
<td></td>
</tr>
<tr>
<td>Emerging Threats IDS</td>
<td>A collection of Snort and Suricata rules files that can be used for alerting or blocking.</td>
</tr>
<tr>
<td>Rules</td>
<td></td>
</tr>
<tr>
<td>FireHOL IP Lists</td>
<td>A firewall blacklist composed from IP lists, providing maximum protection with minimum false positives. Suitable for basic protection on all internet facing servers, routers and firewalls.</td>
</tr>
<tr>
<td>Hail a TAXII</td>
<td>Hail a TAXII.com is a repository of Open Source Cyber Threat Intelligence feeds in STIX format. They offer several feeds, including some that are listed here already in a different format, like the Emerging Threats rules and PhishTank feeds.</td>
</tr>
<tr>
<td>I-Blocklist</td>
<td>I-Blocklist maintains several types of lists containing IP addresses belonging to various categories. Some of these main categories include countries, ISPs and organizations. Other lists include web attacks, TOR, spyware and proxies. Many are free to use, and available in various formats.</td>
</tr>
<tr>
<td>MalwareDomains.com</td>
<td>The DNS-BH project creates and maintains a listing of domains that are known to be used to propagate malware and spyware. These can be used for detection as well as prevention (sinkholing DNS requests).</td>
</tr>
<tr>
<td>OpenPhish Feeds</td>
<td>OpenPhish receives URLs from multiple streams and analyzes them using its proprietary phishing detection algorithms. There are free and commercial offerings available.</td>
</tr>
<tr>
<td>PhishTank</td>
<td>PhishTank delivers a list of suspected phishing URLs. Their data comes from human reports, but they also ingest external feeds where possible. It’s a free service, but registering for an API key is sometimes necessary.</td>
</tr>
</tbody>
</table>
Will Equity Crowdfunding Overtake Angel and VC?

The World Bank estimated that crowdfunding would reach $90 billion by 2020. If the trend of doubling year over year continues, we’ll see $90 billion by 2017.
Why You Can’t Cheat at Bitcoin

1. Say everybody is working on block 91.

2. But one miner wants to alter a transaction in block 74.

3. He’d have to make his changes and redo all the computations for blocks 74–90 and do block 91. That’s 18 blocks of expensive computing.

4. What’s worse, he’d have to do it all before everybody else in the Bitcoin network finished just the one block (number 91) that they’re working on.
Incorporate Intelligence Into Overall Strategy

• It is one piece of the solution that directly enhances other elements

• Thus, the other parts are critical

• Maximize EVERY $$$
• **R**educe Attack Surface starting with web browser
• **O**utsource/Open Source/Open Stack – Back Office, CRM, Productivity, Storage (Archives at a minimum), etc.
• **A**utomate Wherever Possible/Practical & Augment Everything Else
What’s Your Idea??

pkuper@iqt.org