Management Analytics

US v. Apple
The Equities Issue

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The Equities Issue:

Who should be given advantage?

Attack?

Defense?

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The facts

- I did not work this case
  - So I don't have any of the real facts
  - Unless you did – neither do you
- The supposed facts
  - Vary by who you ask
- I am not a rumor monger
  - So I am not going to make facts up
- Rather
  - I will attribute various fact patterns to their sources
  - And speculate about the underlying issue(s)

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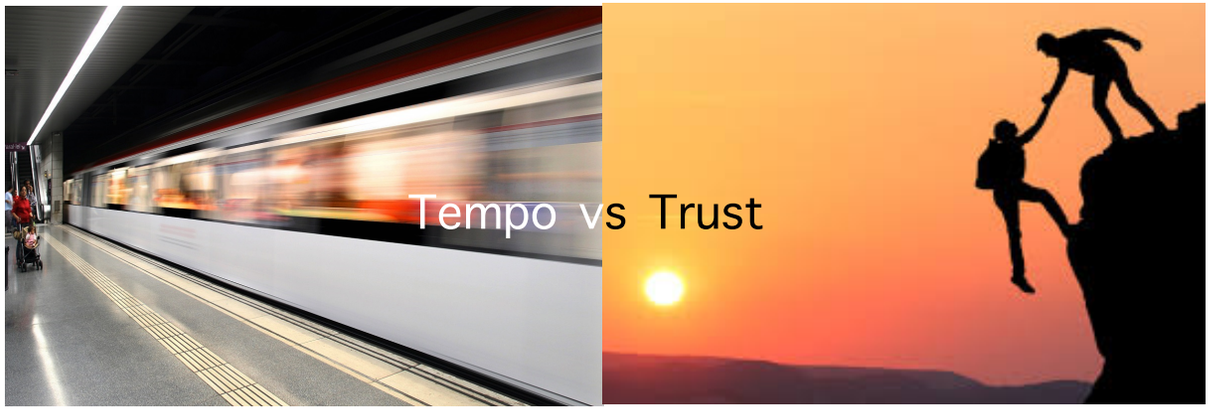
Some tradeoffs

- Exigent search vs normal cases
  - There are cases when time is of the essence
  - That was not the issue here
    - There was no actual basis for exigency
      - Post facto – there might have been!
        - There aways might be! So what!
    - It takes time regardless
      - If you want to get in fast, use a hacker
        - Corporations aren't that fast!
        - Especially doing new things



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Some tradeoffs

- Terrorism and fear mongering
  - How many people are killed by terrorism?
    - There are more dangerous things than this!
      - Bathing
      - Driving
      - Smoking
      - Swimming
      - Lightning
      - Starving

    - I didn't actually look this up, but you should
  - Stop pushing the fear button to take away freedoms!
  - Drive public policy by reason, not by emotion

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Some tradeoffs

- The only thing we have to fear is fear itself
  - The constitution is not a suicide pact
    - Actually – it was… sort of
- Those who give up freedoms to gain security lose both
  - A misquote of course
    - But I use Wikipedia sometimes too
- You can have my guns when you take them from my cold dead hands
  - If bullets costs $500, there would be far fewer shootings
- These meaningless platitudes brought to you by "sayings"
  - It only effects the masses if you can say it simply!
    - Goebels (actually not – but thematic nonetheless)

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The equities issue

- My take on this whole US v. Apple (them) thing
  - It's about the equities issue
    - When should we favor offense vs. defense
  - A.K.A. How did we get such weak cyber systems?
- No system is or can be "secure"
  - We don't even widely agree on what "secure" is!
  - Even if we did, the infinite dimensional Hilbert space
    - Fatalistic (nothing we can do matters) OR effected by the acts of everything always
  - The best we can hope for is to imperfectly constrain futures in a contest between views and acts

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What if we applied the same criteria to bridges

- Bridges can be blown up
  - Do we build bridges to withstand arbitrary attack?
    - No! They are designed not to fall on their own
      - Nature is the design basis threat
- Detonation teams (hackers) can blow up bridges (break in)
  - They could kill untold numbers of people
  - They could disrupt the entire economy
- Don't worry – they are falling down all on their own
  - Because we are spending all our money on terrorism instead of fixing our breaking infrastructure
  - Save the infrastructure! Stop trying to break into iPhones and instead pay that money to fix bridges!

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Equities

- The best defense is a good offense!
  - Football saying aside, it's not actually
    - At least in cyberspace
- The reason we favor attack over defense in cyberspace
  - Intelligence is the only way to interdict attacks
    - The ability to break into systems and gain access is core to our ability to defend the nation against all threats, foreign and domestic
      - The constitution rules
- But when we spend too much on attack and weaken defenses intentionally, the weaknesses are available to everyone
  - In cyberspace, your unique entry today is my automated script today. It only takes a minute or two – often less

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Equities

- Manning to Snowden – a.k.a. risk aggregation
  - Risk aggregation was a known and published problem long before Manning or Snowden
    - Defenders knew or should have known that a single trusted insider could take mass quantities
  - Manning took advantage of aggregated risk
    - All the eggs in one basket – one person got the eggs
    - Who could have known! Nobody ever did this before!
    - You should have known! Done many times before!
    - So fix it! (I personally/publiscly told the them fix it)
  - Snowden again took advantage of aggregated risk
    - So they have a two-person rule now... sort of...

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You are warned!

- Someone will do it again – perhaps two people together!
  - They may be lovers! They may be spies!
  - If you put all your eggs in one basket... you're cracked!
- The underlying problem is not bad management
  - The underlying problem is that we don't spend the time and effort to know as much about defense as offense
  - And we are the ones most vulnerable to attack
    - Because we are the most dependent on cybersystems
  - Why are we so dependent?
    - Because we decide to be
      - Efficiency over effectiveness
        - By bad management decisions!

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Sort of

- Bad management decisions regarding risk are not so bad...
  - Start with 10 companies in business X
  - 5 spend a lot on security, 5 spend a little
  - Of the more secure ones, 2 fail from natural causes
    - Of the less secure ones 1 more fails from insecurity
  - Now have 2 insecure companies with more money and 3 more secure companies with less money
    - Each less secure company buys a more secure one with the extra money they made
  - We now have 2 insecure and 1 more secure company
- Less security is the better business decision!
  - It's good management! If the goal is to make more money!

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Capitalism

- If capital is the religion, security is not the goal
  - It's the classic problem of local vs. global optimization
  - The global optimum is more slightly more secure companies
  - But since each optimizes for itself, the time sequence rules
- The political system with global optimization is called...
  - Authoritarianism (not communism – that's even worse – you lose both the efficiency and the security)
  - We don't want it! (I hope)
- Maybe we need another "ism"
  - Enlightened self-interest / Long-term capitalism
  - Wow! All this from an iPhone?!

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Back to the iPhone

- LE/Gov wants vulnerabilities only they can exploit
  - But it doesn't work that way
  - If there is a vulnerability anyone can find and exploit it
  - History shows that this happens (a.k.a. evidence)
- LE/Gov says "trust us – we are the good guys"
  - But it doesn't work that way
  - If it can be taken advantage of for good, it can for ill
  - History shows that this happens (a.k.a. evidence)
- So because of a few bad apples, this spoils the whole bunch?
  - Welcome to the equities issue! The magnitude of the damage depends on what happens!
    - The infinite dimensional Hilbert space returns!

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Some facts folks are going to have to live with

- The technical geniuses CAN NOT do "anything" regardless of their ads
  - Artificial intelligence isn't – aliens found no intelligent life on Earth
  - Natural stupidity we seem to have plenty of (thanks Irwin Marin)
  - You can build systems you cannot get into – but it's a bad idea
    - Just because you cannot get in, doesn't mean I cannot
      - Ain't a horse that can't be rode,
      - Ain't a man that can't be throwed!
- "Any" is not "all" - but in computers today, "any" implies "all"
  - If you can get to "any" record, you can get to "all" records
  - It doesn't have to be this way – but today it largely is
  - Don't imagine Apple knew how to get in immediately
- Hackers cannot do "anything" regardless of the propaganda
  - Stop associating magical powers with things you don't understand

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The solution!?!

- I didn't promise you solutions!
  - I promised tradeoffs and plenty of problems with them
- Where do I stand?
  - I don't care about Apple or the FBI
  - I care even less about the assholes who kill people because they have a wacko view of a religion they misunderstand
  - I care about the same things you do
    - My family and their happiness
    - Everyone else's families and their happiness
- In the US, we are highly dependent on cybersystems
  - We need to defend them so as to avoid aggregated risks and their consequences when exploited

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Avoiding serious negative consequences of risk aggregation

- Apologies: I have used the 4-letter word that ends in "k"
  - Risk is the set of unconstrained futures of the infinite dimensional Hilbert space that is the current view of reality from physics
  - As we build more interdependent and interconnected cybernetic systems, we change the Hilbert space so that more of the futures involve outcomes with serious negative consequences
    - Serious negative consequences are
      - The things I care about
        - My family and their happiness
        - Everyone else's families and their happiness

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Avoiding serious negative consequences of risk aggregation

- To avoid the potentially serious negative consequences
  - We seek to constraint the futures of the Hilbert space
- The thing we (people) do is:
  - Model-based situation anticipation and constraint
    - We model the Hilbert space imperfectly
    - We use the models to anticipate futures
    - We seek to act so as to constrain futures
  - If the most serious negative consequences are the result of risk aggregation, a seemingly obvious solution is to
- Stop aggregating risks beyond the threshold of security to adequately mitigate it
- Disaggregate risks where they exceed the threshold today

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Back to the equities issue

- So what are the serious negative consequences today that exceed the ability of cybersecurity to mitigate them adequately?
  - We (the US) lacks the political will to figure it out
- I have my ideas about it and you probably have yours
  - But the right way to get at the real answers is to study it using a scientific approach
  - Sound science takes time and money
  - We don't even fix our bridges
- The real underlying equities issue is our broken political system
  - The worst system ever invented – except all the others
  - The way to fix it is to DO YOUR HOMEWORK and VOTE!!!
- I believe in democracy when the people can get the truth

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Thank You

fc at manalyt.com (among others)