

Ideas to Innovation

Research vs./to Product

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and

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Who am I?

- Professor of Computer Science at the University of California in Santa Barbara
 - Started malware research around 2004, focusing on evasive malware
 - Built (and made available to the public) several analysis systems (Wepawet, Revolver, Hulk, Anubis* ...)
- Co-founder and CTO at Lastline, Inc.
 - Lastline offers protection against zero-day threats and advanced malware
 - Co-founders are Chris Kruegel and Engin Kirda

*Anubis was actually developed by Chris Kruegel and Engin Kirda

Lastline

- VC-backed company
- ~60 people
 - Lots of PhDs/researchers
- Product analyzes enterprise networks, to identify and block malware infections by correlating the results of network analysis and artifact analysis (programs, documents, web pages)

Why Lastline?

- Saw an opportunity to see our ideas work in the real world
- Saw the potential for industry innovation
- Saw the potential for discovering interesting research topics

How We Got There

- Research prototypes available to the community (e.g., Anubis, Wepawet)
 - Crowdsourced testing/debugging
 - Collected data
 - Learned to maintain a scalable system
 - Attracted interest from the community
- Should this be a product?
 - Put to work the lessons learned by running the systems

How We Got There

- What is that cannot be easily replicated (stolen)?
 - “Unfair advantage”
- Realization: We have a very good idea of what’s bad out there
- Product: continuously-updated intelligence that fuels a “reverse firewall”
- Pitch it for angel funding
 - People who trust/respect/value you are the best audience/introducers
- Found out that product is not right (not enough customers) or it is not used in the right way
- Pivot to an enterprise product that uses the intelligence and the analysis in an integrated fashion

Money for Something

- 2009: No Money
- 2011: Angel funding: 900K
 - Allowed for bringing people with salaries, including CEO
- 2012: Convertible note: 2.8M
 - Allowed for waiting for the right moment to raise money
- 2013: Round A: 10M
 - Allowed for creating a sales force
- 2014: Round B: 10M
 - Allowed for scaling

Lessons Learned

- Find a mentor who went through it all before you (successfully)
 - Possibly with the same (academic) background
- Figure out the intellectual property issues from day -1
 - Investors will worry about this quite a bit (see Netscape)
- Start with an awesome founding team
 - These people will stay with you throughout the whole thing
 - They are motivated by something else than plain profit

Our Founding Team

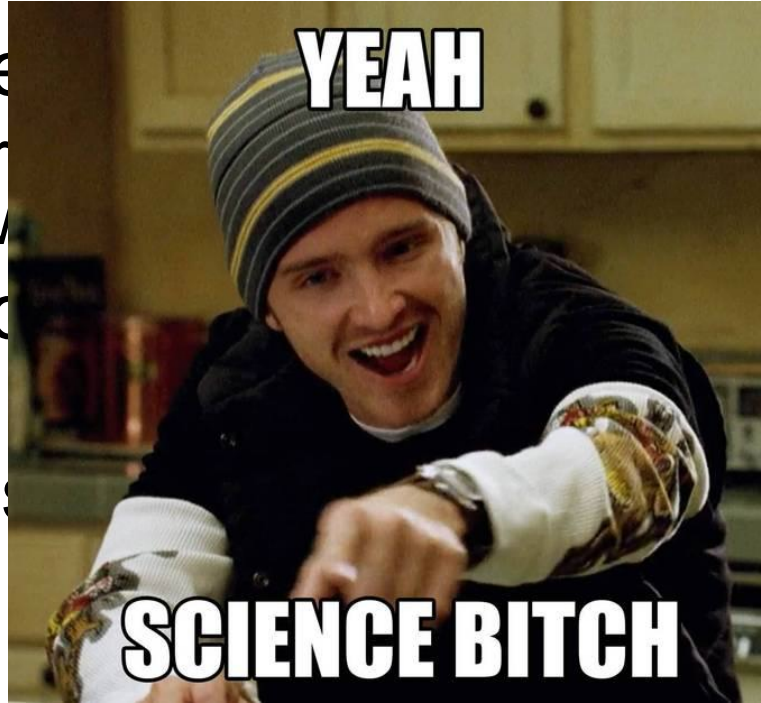
- Ludovico Cavedon (MS, UCSB)
- Marco Cova (PhD, UCSB)
- Gregoire Jacob (Post-doc, UCSB)
- Clemens Kolbitsch (PhD, TU Vienna)
- Paolo Milani-Comparetti (Post-doc, TU Vienna)
- Brett Stone-Gross (PhD, UCSB)
- Thorsten Holz (Post-doc, TU Vienna)

Lessons Learned

- Don't believe the hype
 - Many “novel approaches to business” are just fads
- Understand the process
 - Book: “Engineering Your Start-up” by Swanson and Braid
- Trust people that are trustworthy
 - Be wary of people who do not want to put things in writing...

Lessons Learned

- Selling is e
– It's better
sell an av
- Don't get c
– They will
- Play your s



ct than not to
ompetitors

Conclusions

- Scientists and researchers are great candidates for successful startups
- Get an awesome founding team
- Have the humbleness to understand that you don't have business experience: find help
- Realize that we have been trained to solve difficult problems, and (most of the time) we are really good at it (and better than others)
- Keep your eyes open for the sharks

Questions?

What we care about...



What the customer cares about...

