



Why IT industry is entering its darkest era yet, how DevOps is to blame and why Das Kapital can help

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I'm sorry, y'all: James Mickens couldn't be here




Q: Why Do Keynote Speakers
Keep Suggesting That Improving
Security Is Possible?
A: Because Keynote Speakers
Make Bad Life Decisions and Are
Poor Role Models

**27TH USENIX
SECURITY SYMPOSIUM** Aug. 15–17, 2018
Baltimore, MD

NDC
{SYDNEY} Aug. 1—5, 2016 | Sydney, Australia

Life As A Developer: My Code
Does Not Work Because I Am A
Victim Of Complex Societal
Factors That Are Beyond My
Control And Do Not Involve My
Own Laziness

James Mickens
Harvard University



key·note

/ˈkēˌnōt/

noun

a prevailing tone or central theme, typically one set or introduced at the start of a conference.



Why IT industry is entering its darkest era yet, how DevOps is to blame and why Das Kapital can help

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Cloud-native Marxism

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Who is
John Galt ?

DevOps



Are you one of these personas?

- **Businessman**

- Acquire resource, create value, sell at a profit
- Capital resources, Operational resources, Labor resources

- **Developer**

- Create value potential
- Has this user story been delivered?

- **Operator**

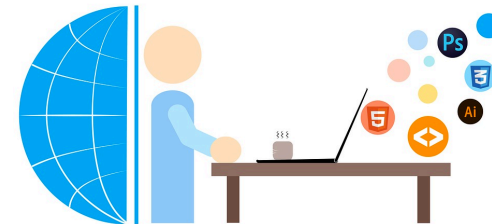
- Deliver value (turn potential value into actual one)
- Is our site/service up?

- **Who's missing?**

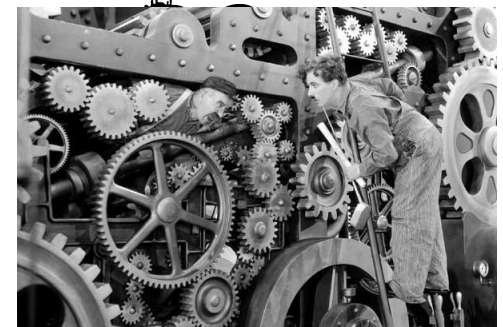
- DevOps engineer



Businessman: profit by *value* creation



Developer: agility

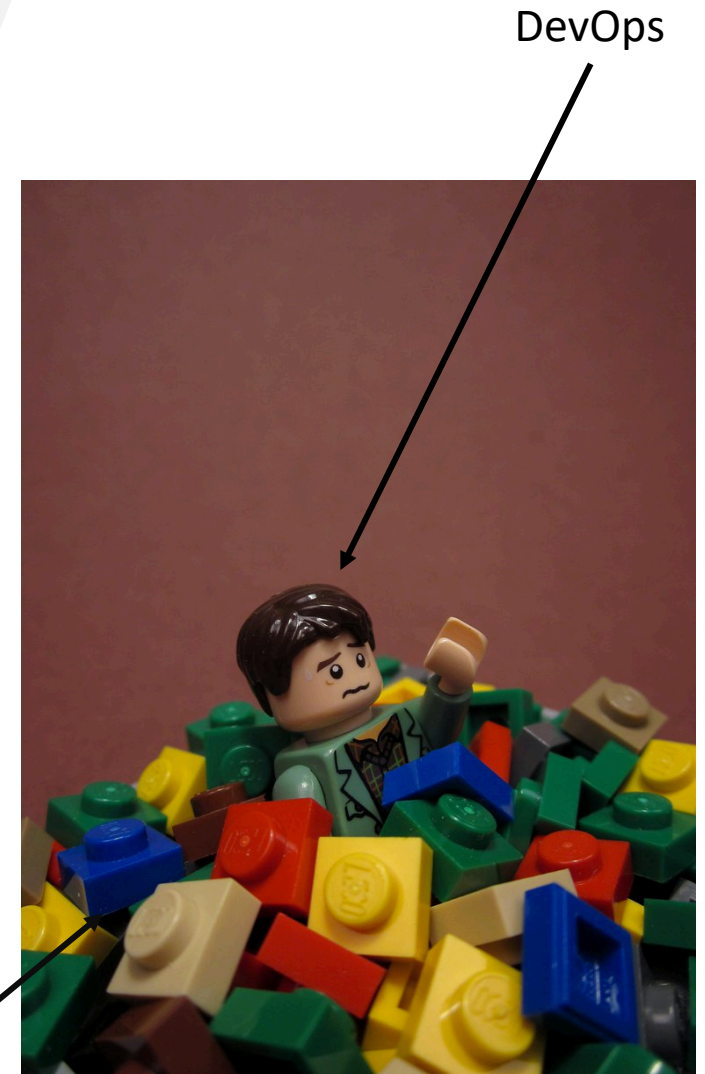


Ops: Operational stability

DevOps is “agilification” of Ops

Everything's agile, now what?

- **Glass half empty**
 - DevOps
 - Liquid Software
 - We are all [developers|operators] now (T-shaped?)
 - Weaponization of complexity
- **Glass half full**
 - Liquid Software
 - We can build the incremental pipeline
 - Definition of done: has this story been delivered?
 - We can sit in the same room (close to the boss!)
 - Reducing of complexity and better security

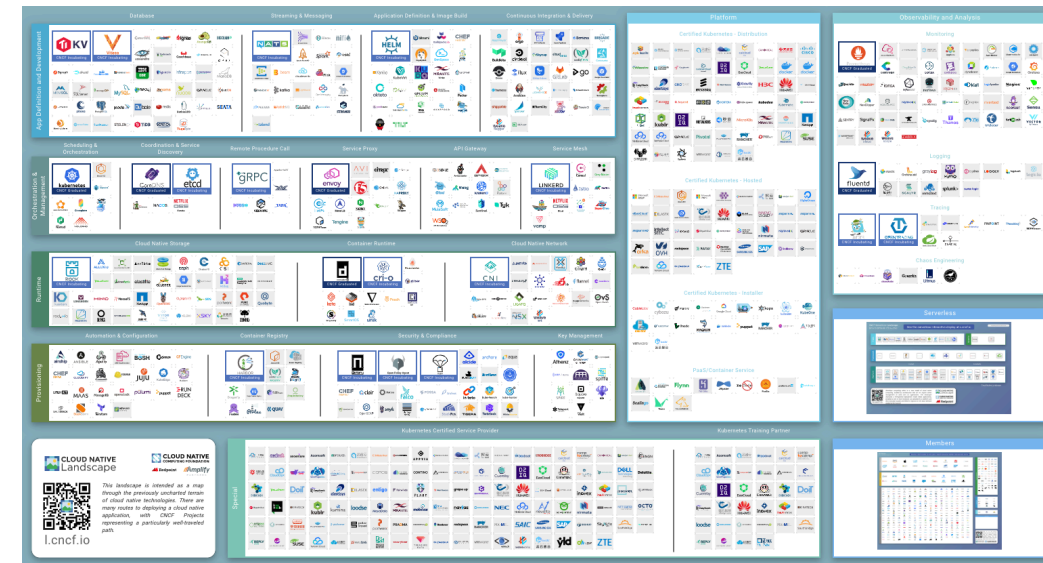


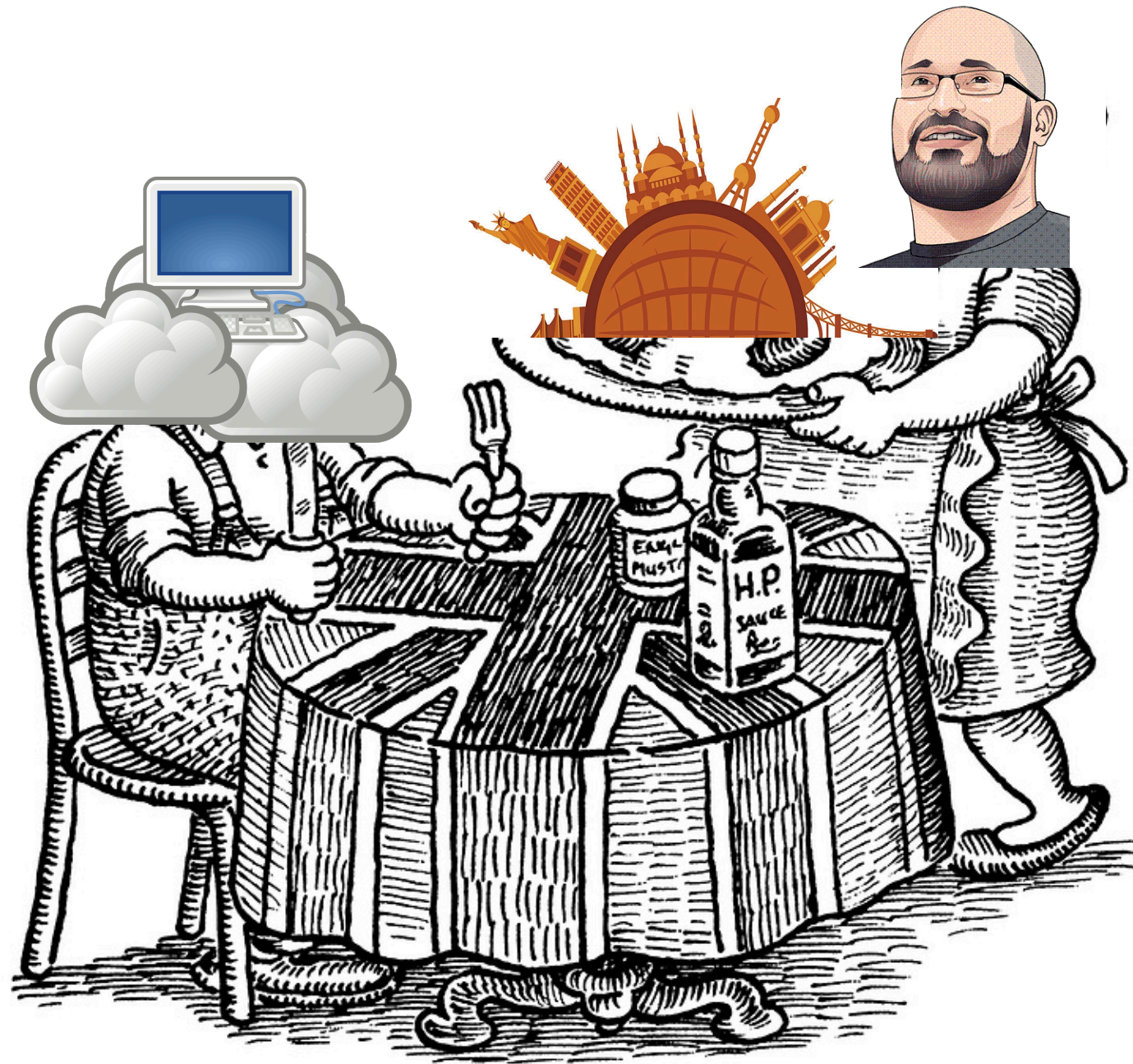
Features

class SRE implements DevOps

DevOps: key to Cloud-native cult[ure]

- Accept failure as normal, plan for and even welcome it
- Look at everything as software-defined
 - infrastructure, tooling, etc.
- Reduce organizational silos
- Create pipeline for “liquid software”
- Measure everything
 - Take a business-centric view, though
 - Don't confuse measuring, monitoring and alerting



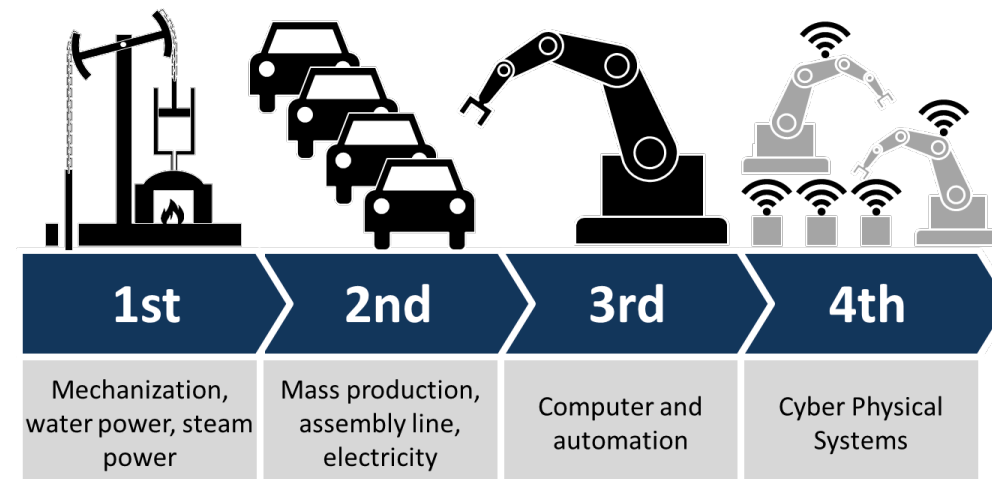
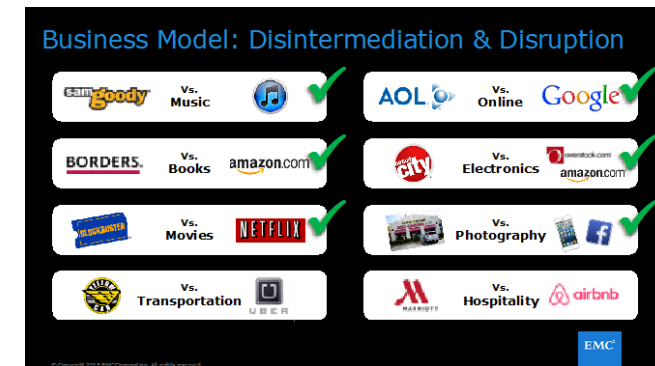
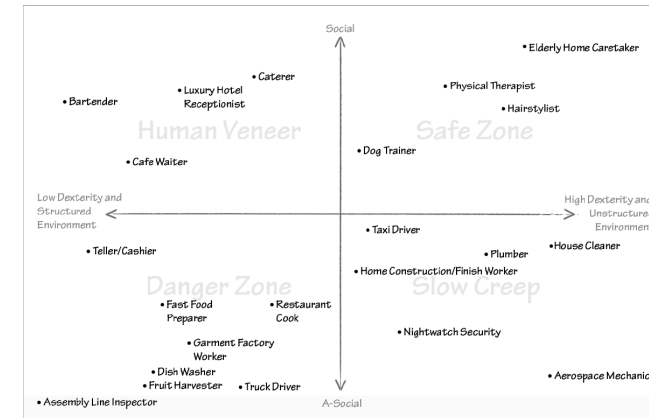


“Software is Eating the World”

- Marc Andreessen, August 20, 2011

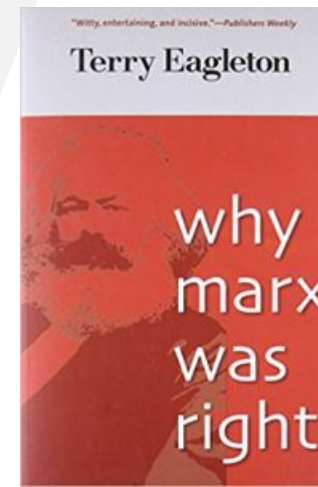
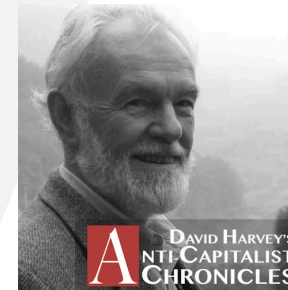
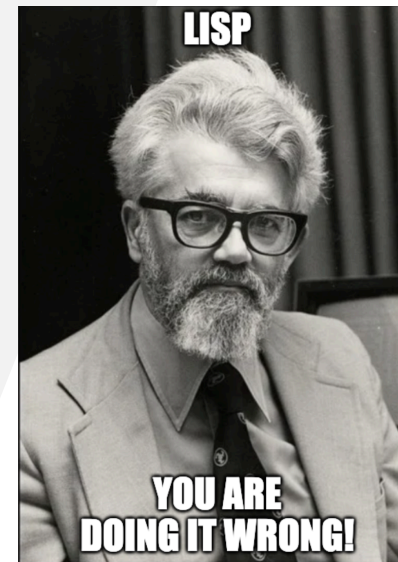
What does it even mean?

- **Businesses have to become software-defined**
 - Digital Transformation driven by CDOs
 - Where do we draw the line: software-defined oil refineries?
- **World's infrastructure is becoming software-defined**
 - Industrial revolution 4.0
- **Robots will take all of our jobs**
 - Run, don't walk to buy AI Superpowers by Kai-Fu Lee
- **Data is the new oil**



Marxism is just like LISP

- Modes of production define human, societal evolution
 - Productive forces + Productive relationships
- Productive forces
 - Resources (material, human, etc.)
 - Means of production (AKA technology)
 - ***Productive forces evolve every day***
- Productive relations
 - How human beings relate to productive forces
 - Division of labor determines social classes
 - ***Productive relations do NOT evolve at all***



Людены или Великая Октябрьская Социалистическая Контрреволюция

Поиск по сайту

Книга Людены

[Где обсуждать](#)

▼ [Скачать "Люденов"](#)

[HTML](#)

[EPub \(Android, Nook...\)](#)

[Mobi \(Kindle\)](#)

Кто Спер Мой СССР?

▼ [Скачать "Кто спер..."](#)

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Разное

[Разные ссылки](#)

[Разные фото](#)

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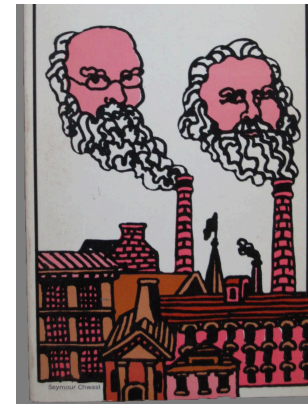
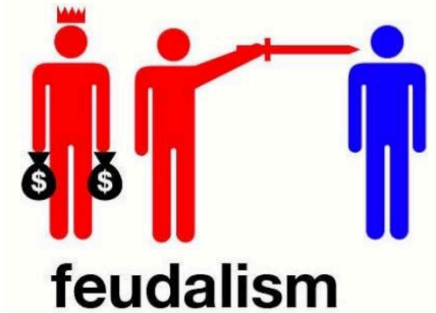
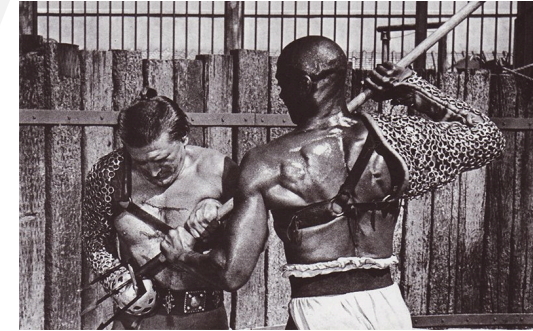
Разные фото

А тут будут разные фото.



Modes of production

- **Primitive communism**
 - All for one and one for all (still not enough to eat)
- **Ancient**
 - Citizens vs. Slaves
- **Feudal**
 - Nobles vs. Serfs
- **Capitalist**
 - Bourgeoisie vs. Proletariat
- **Cloud AKA Software-defined**



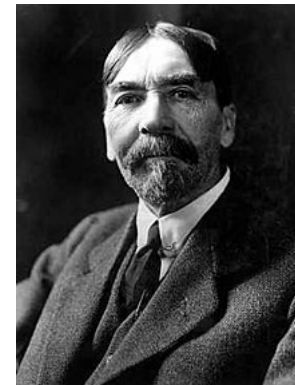
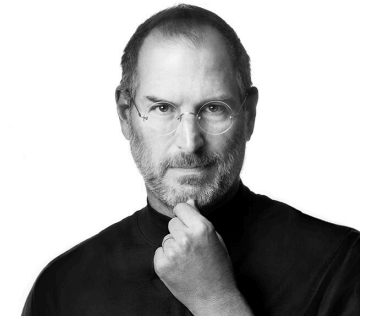
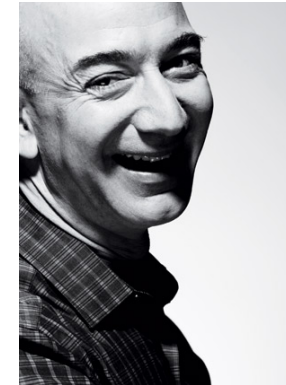
~~“Software is Eating the World”~~

**“A spectre is haunting the World –
the spectre of cloud!”**

- Roman Shaposhnik, October 30, 2019

Cloud mode of production

- **New productive forces**
 - Software
 - Data
 - AI
 - Robots
 - Featuring “cloud” as the key means of production
- **New productive relations and classes**
 - New forms of capital
 - VC “Visionary Capitalists” class
 - Product Managers
 - Developers
 - Introducing a “conspicuous consumption” class



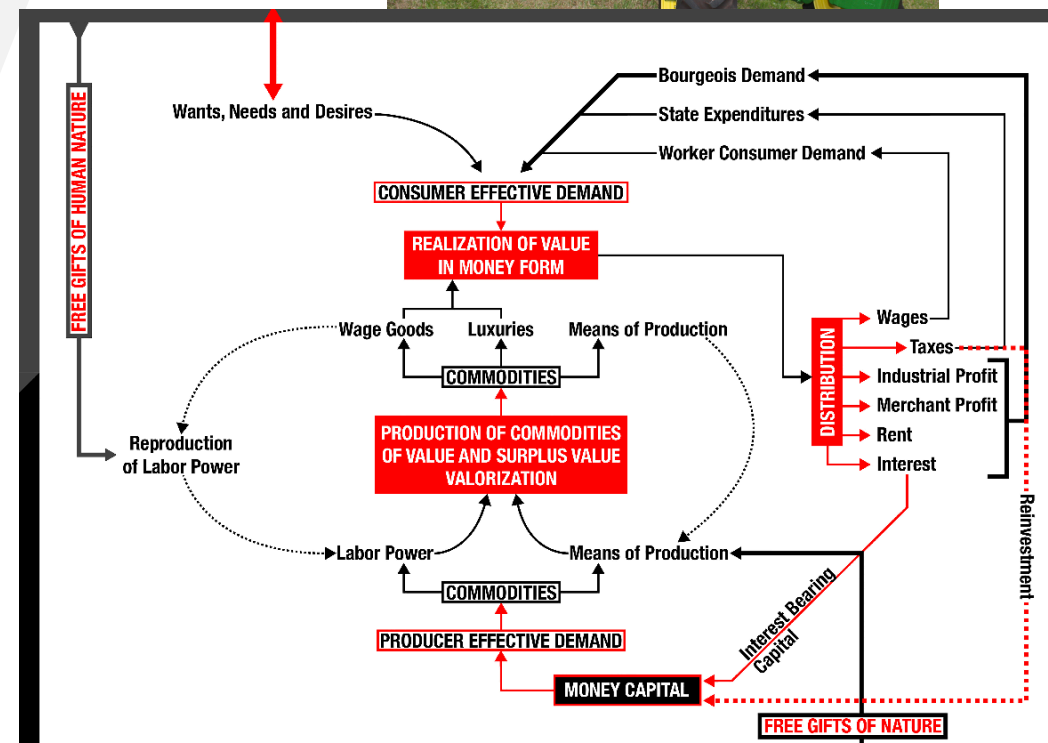
On having your cake and eating it

- **Labor theory of value**
 - Value is a total amount of “socially necessary labor”
 - “the material relations between people become social relations between things”
- **Stay above the “value line”**
- **“Community over code” is the ASF motto**
 - Not “communism”, but “meritocracy”/“do-ocracy”
- **Open Source**
 - We are the new kind of liberated workers
 - Source is the new valuable property
 - Licenses are new “relationships”
 - Foundation are new unions
 - PR are the basis of “productive relations”



Interesting questions to ask

- **Ownership**
 - Physical objects
 - Means of production
 - What about ML model in your Tesla?
- **Meaning of value AKA Business Models**
 - XaaS
 - Subscription
 - "YOU are the product"
- **Meaning of work**
 - Economic value of work
 - Social value of work
- **Is Capitalism really dead?**



Never let a good crisis go to waste

- **Over-production crises of 2019**
 - Feature overproduction crisis AKA Kubernetes
 - End of Moore's Law
 - HDD capacity vs. unit growth
- **Ultra-concentration of productive forces**
 - Compute
 - Data
- **New kinds of vendor lock-in**
 - Serverless is the worst offender
- **AI arm race between US and China**
 - No, you really need to read Kai-Fu Lee
- **Splinternet**



“No Moore Left to Give”

- Bryan Cantrill, July 16, 2019

Software: a silicon-based life form

- **What even is Moore's Law?**
 - # of transistors, speed of transistors, density?
- **Who actually came up with it?**
 - Carver Mead in '71 (Moore updates it in '75)
 - Robert Dennard came up with "Dennard Scaling" in '74
- **Moore's Law is about economics**
 - Market demand,
 - ...**NOT** "density at any cost"

The future of integrated electronics is the future of electronics itself. The advantages of integration will bring about a proliferation of electronics, pushing this science into many new areas.

Integrated circuits will lead to such wonders as home computers—or at least terminals connected to a central computer—automatic controls for automobiles, and personal portable communications equipment. The electronic wristwatch needs only a display to be feasible today.

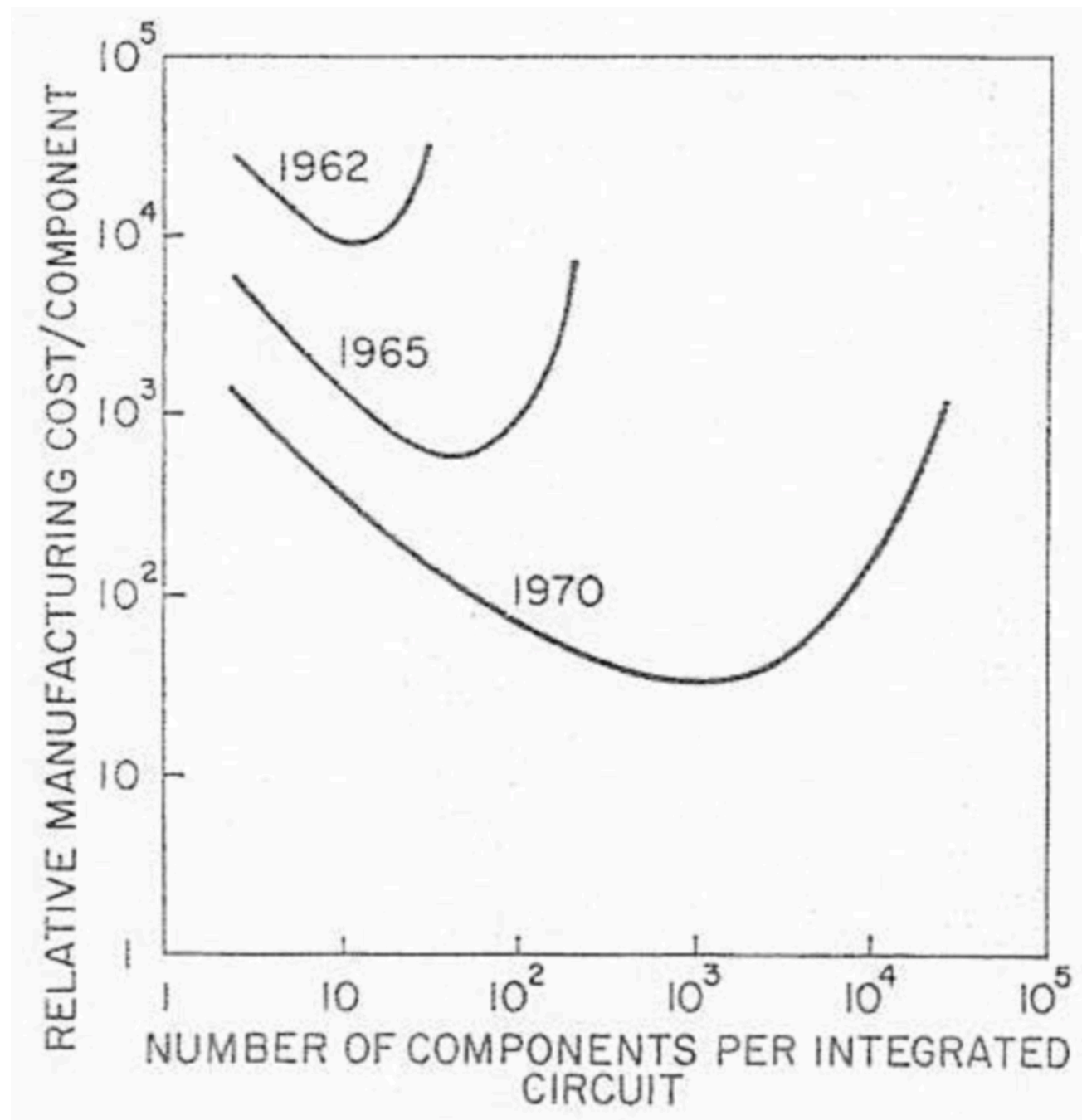
The experts look ahead

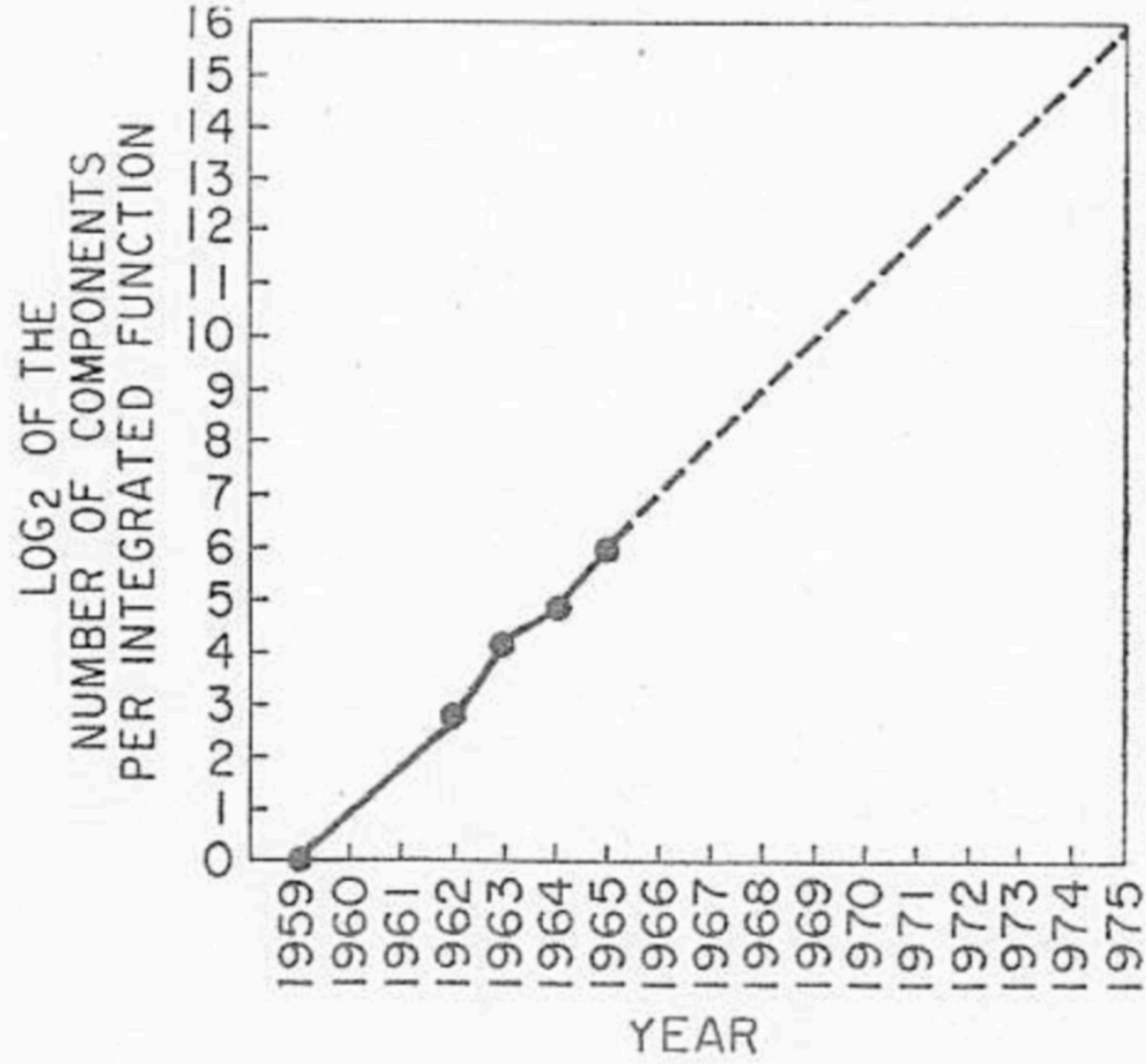
Cramming more components onto integrated circuits

With unit cost falling as the number of components per circuit rises, by 1975 economics may dictate squeezing as many as 65,000 components on a single silicon chip

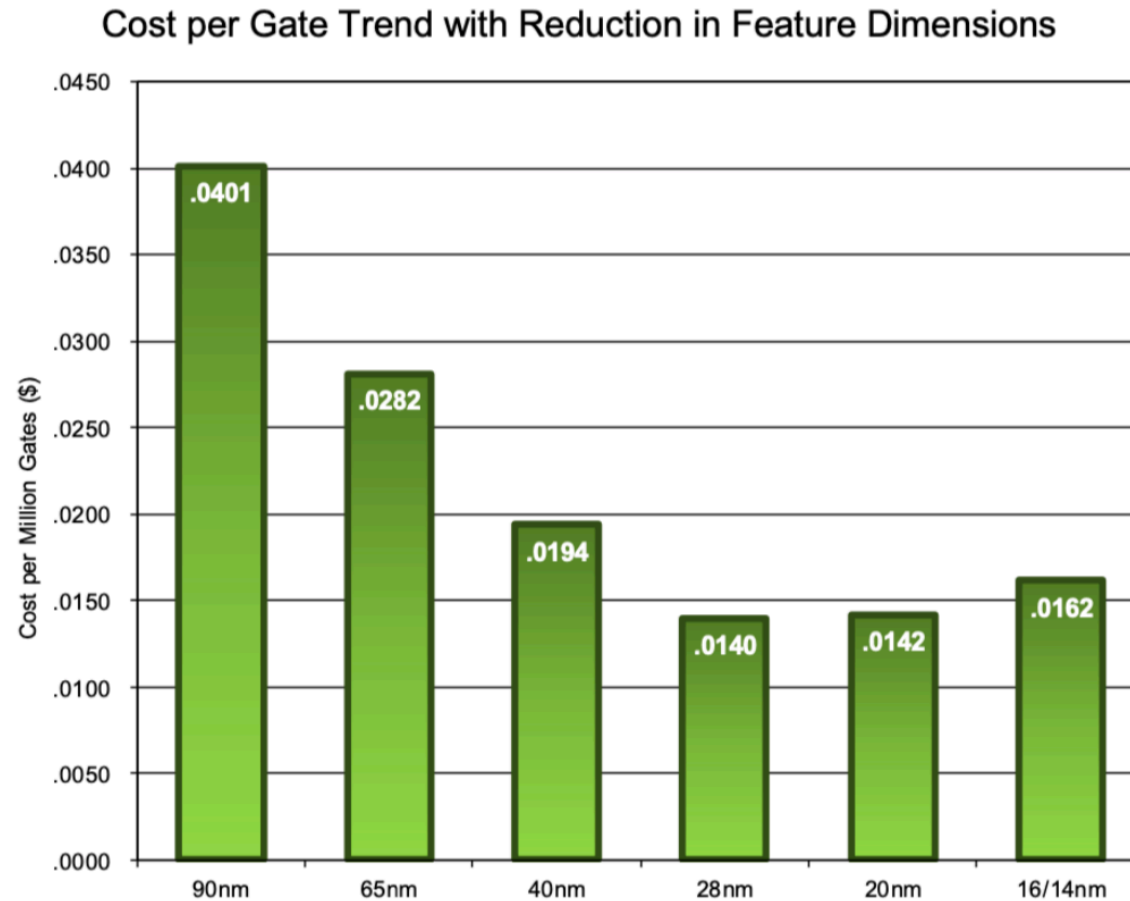
By Gordon E. Moore

Director, Research and Development Laboratories, Fairchild Semiconductor division of Fairchild Camera and Instrument Corp.





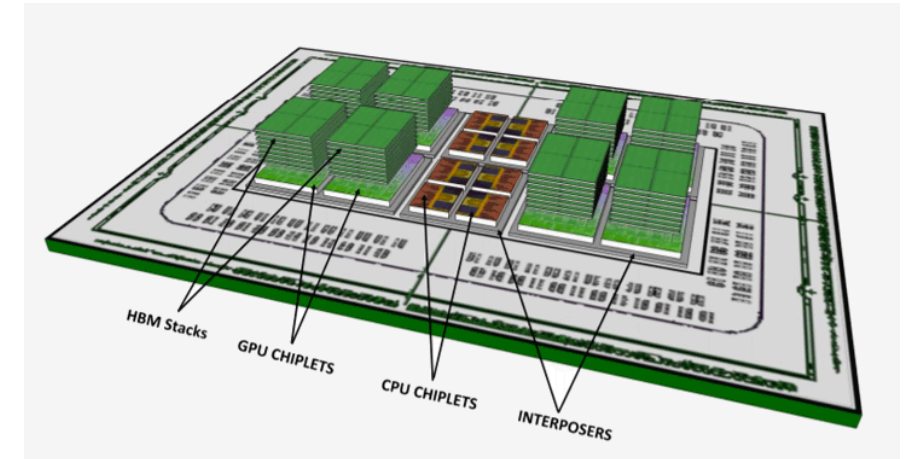
Moore's law final death certificate



Source: "Why Migration to 20nm bulk CMOS and 16/14nm FinFETs is not best approach for semiconductor industry" (Handel Jones, IBS, 2014)

Life after Moore's Law

- “We will increasingly think of the entire system”
- Quantum computing
 - AKA “analog computing”
- Going up!
 - 3D (NAND, etc.)
 - 2.5D
- Going wide
 - Massive datacenters AKA Cloud Computing
 - Compute everywhere AKA Edge Computing

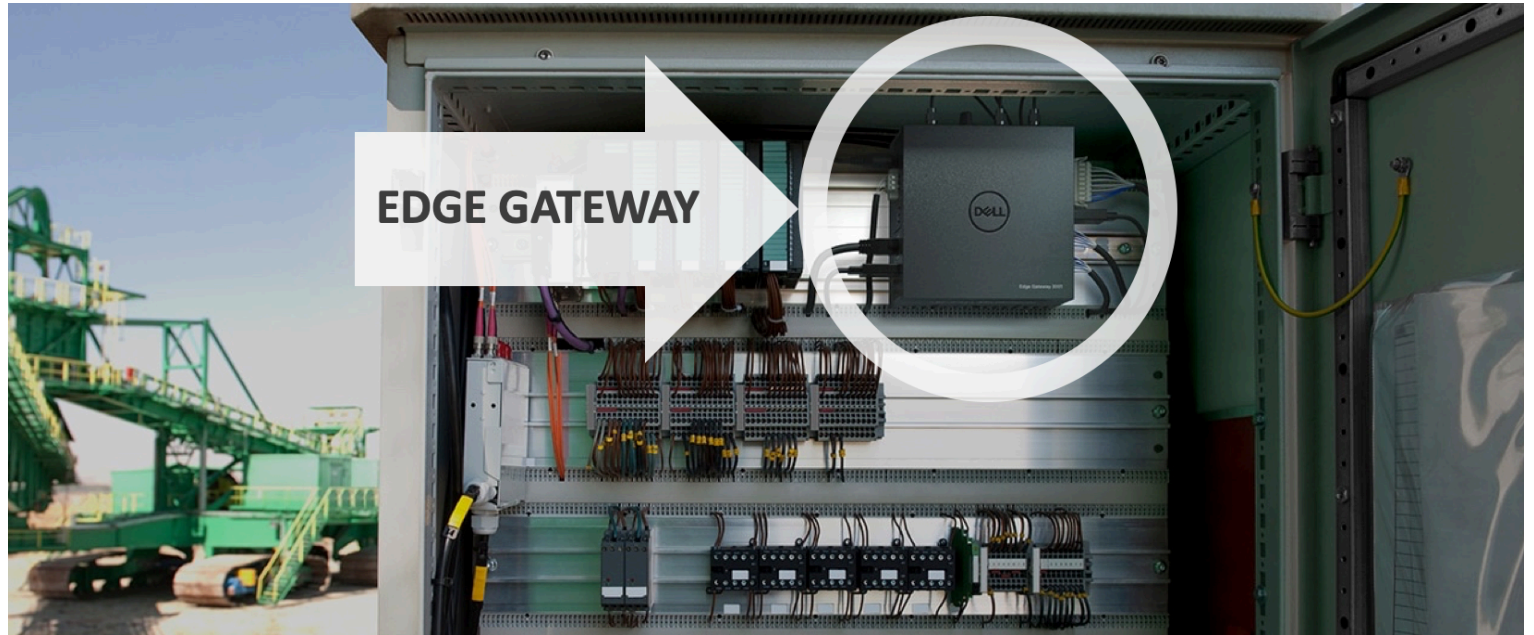


“Seize the means of production”: invest in Edge Computing

- ZEDEDATA Inc., October 27, 2016

Edge Computing is... “cloud-native” IoT

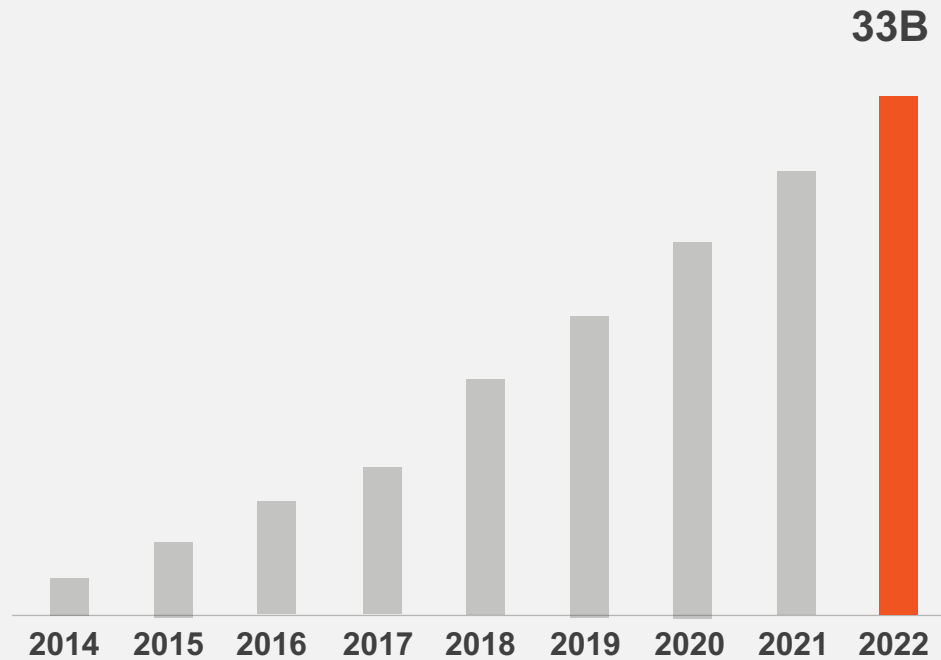




Edge ain't your gramp's
Embedded and/or IoT

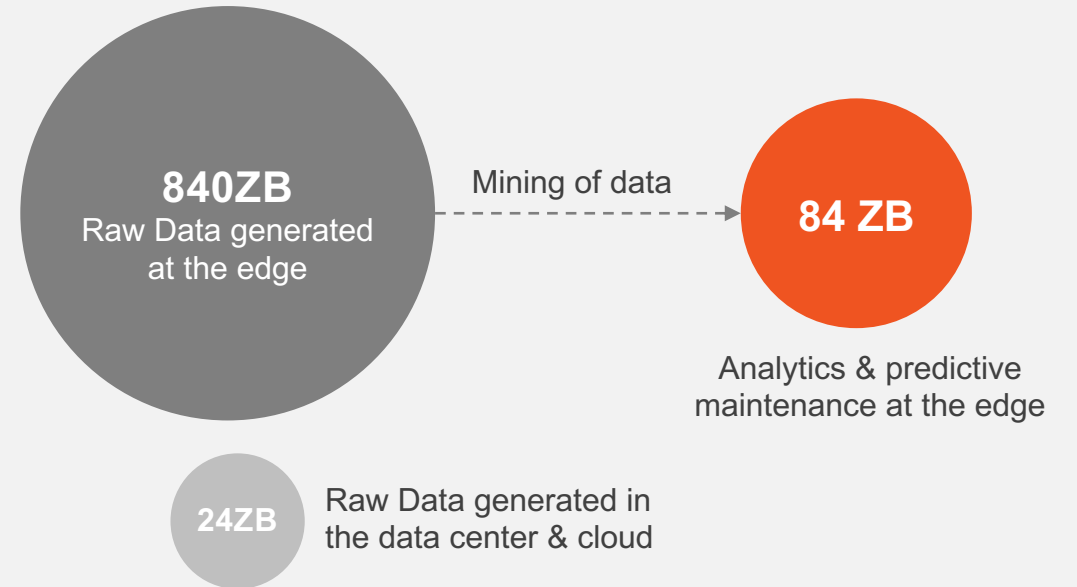
CONNECTED DEVICE

2022 (33 Billion)



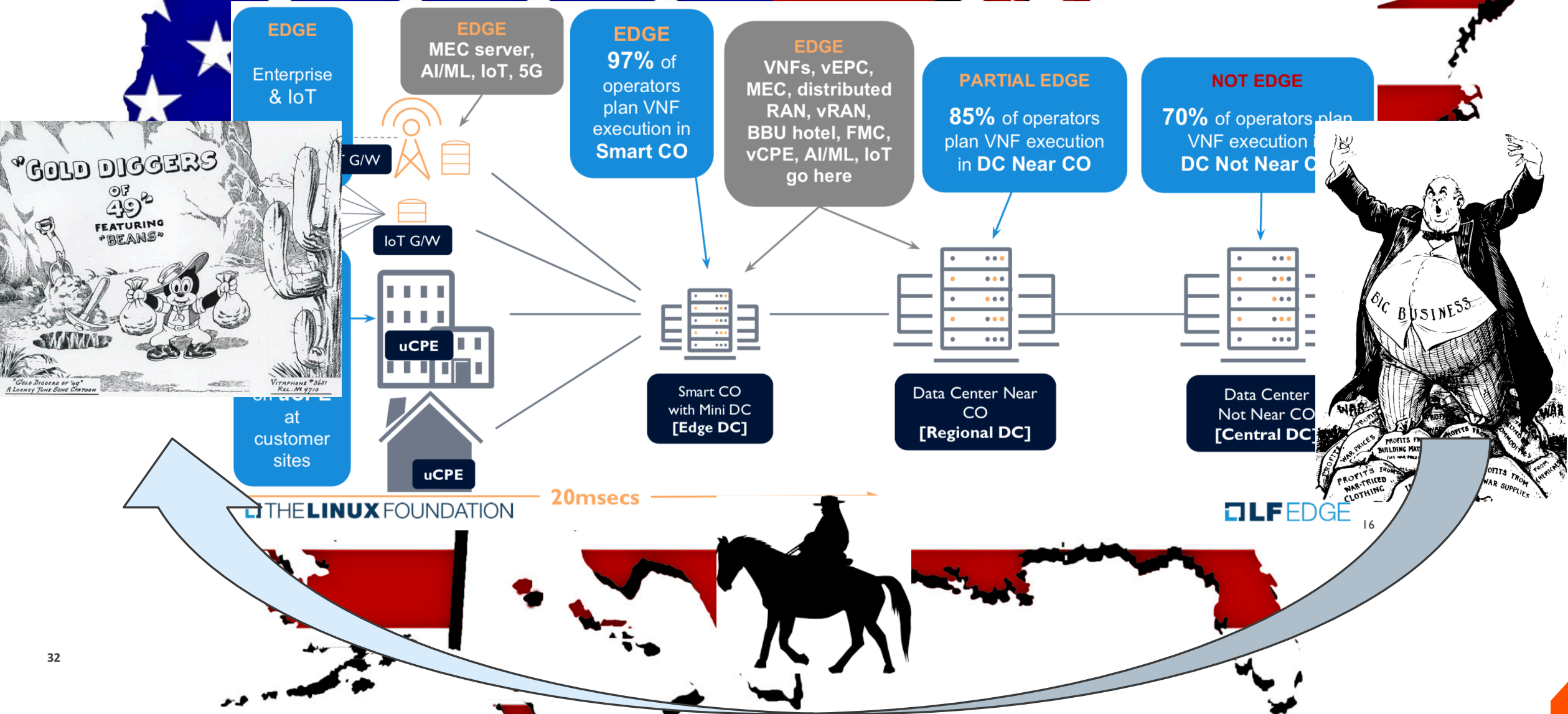
DATA AT THE EDGE

2022 (840 ZB)



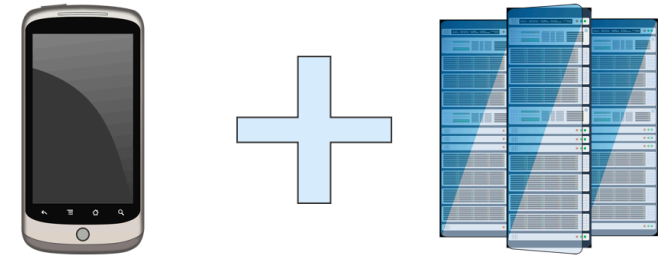
**Data must be pre-processed at the edge
due to bandwidth, latency and cost**

Go West, young man, go Edge!



Are you ready to live on the Edge?

- **Edge is one final “Cloud” we’re building**
 - Remember: everything has to be “Cloud Native”
 - Edge DevOps anyone?
- **So... Edge is just another cloud?**
 - Yes and no. It is more like mobile + DC
- **Can we rub some Kubernetes on it?**
 - APIs – most likely
 - Implementations -- absolutely not!
- **Economics of the Edge**
 - Super-heterogeneous ownership
 - Huge business opportunity seen by VCs
 - AI (especially autonomous) is a “killer app”



Kelsey Hightower ✓
@kelseyhightower

Follow

After watching Kelsey Hightower videos on YouTube all you want to do is go rub some Kubernetes on it. [#AutomaCon](#)



3:48 PM - 16 Sep 2015

4 Retweets 9 Likes



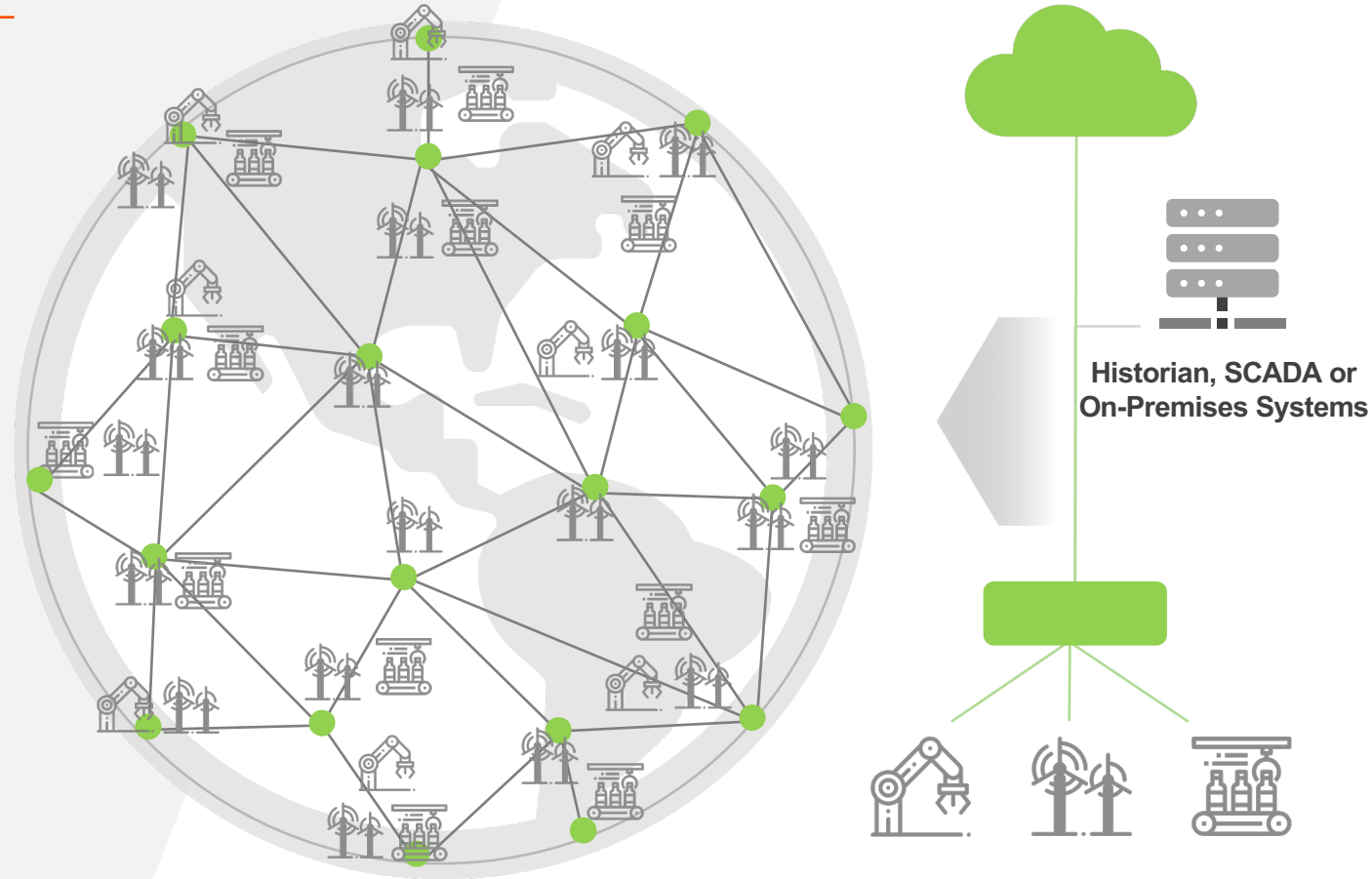
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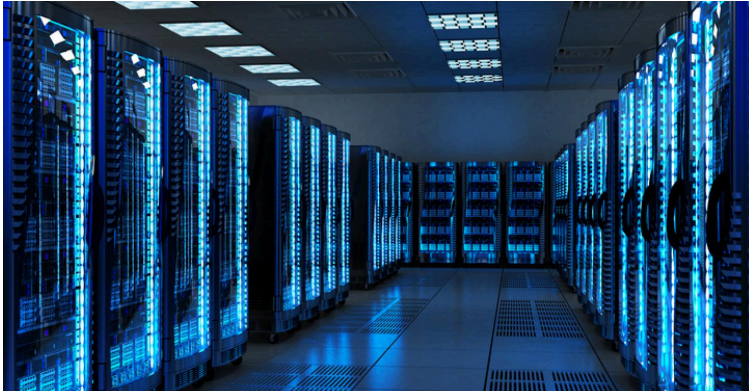


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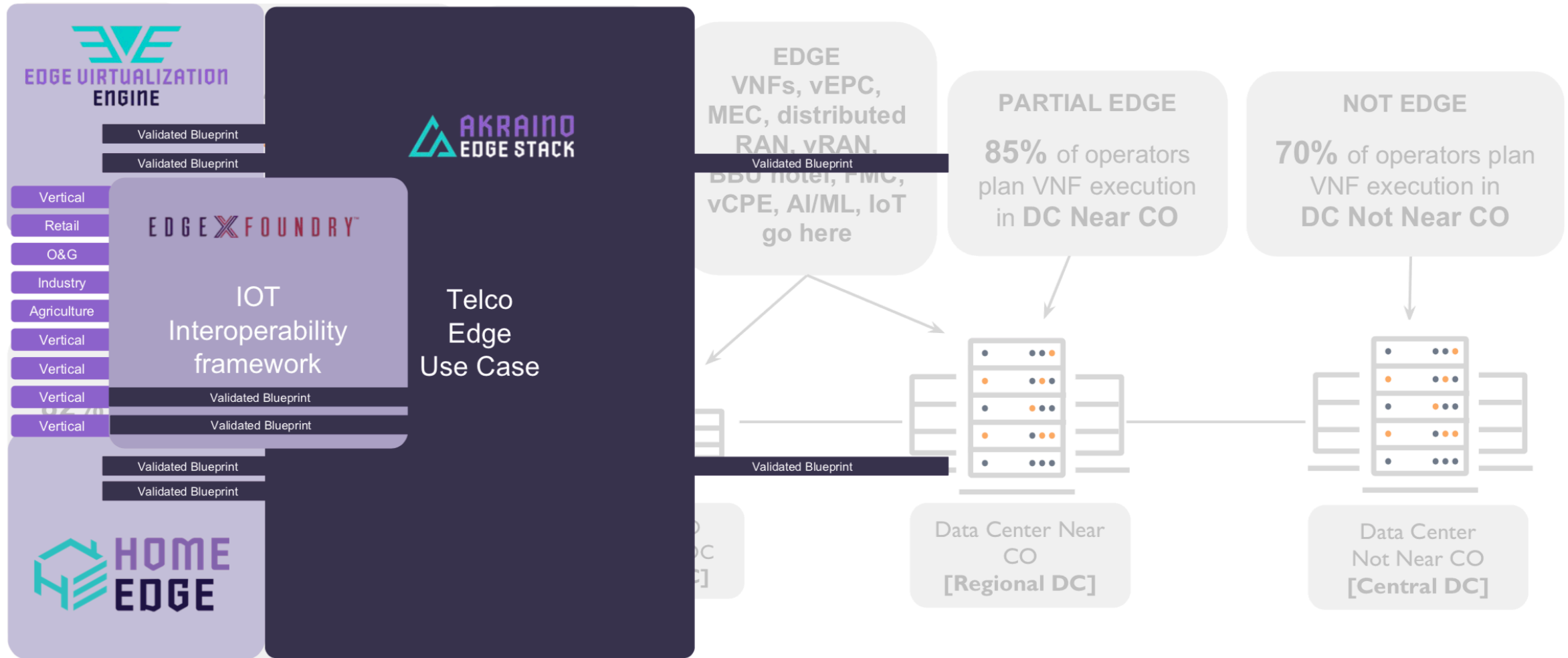
Challenges at the Edge

- **Diversity of gateways and apps**
 - Infrastructure management
 - Orchestration of apps
- **Scale and automation**
 - Geographically disperse
 - Deployment and maintenance
- **Security – increased threat vector**
 - No perimeter network security
 - No perimeter physical security
- **Vendor lock-in is impossible**
 - Distributed Ownership...
 - ...hence it *has* to be open





LF Edge Projects



LF Edge Projects

Drivers

- › Complementary and aligned vision on multiple LF projects
- › Fuels faster adoption and deployment
- › Edge market is fragmented and creating a larger entity provides leadership

Projects



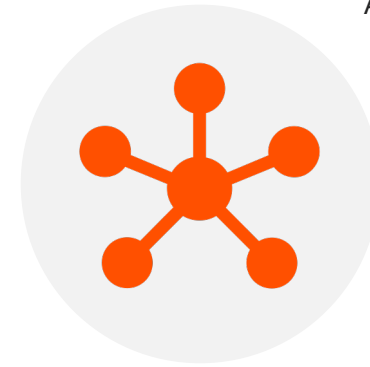
Edge Virtualization Requirements



ZERO TOUCH



FREEDOM OF ANY
APP | HARDWARE | CLOUD



IoT SCALE



CLOUD NATIVE



ZERO TRUST



Guarding Against Physical Attacks: The Xbox One Story — Tony Chen, Microsoft



Watch later



Share

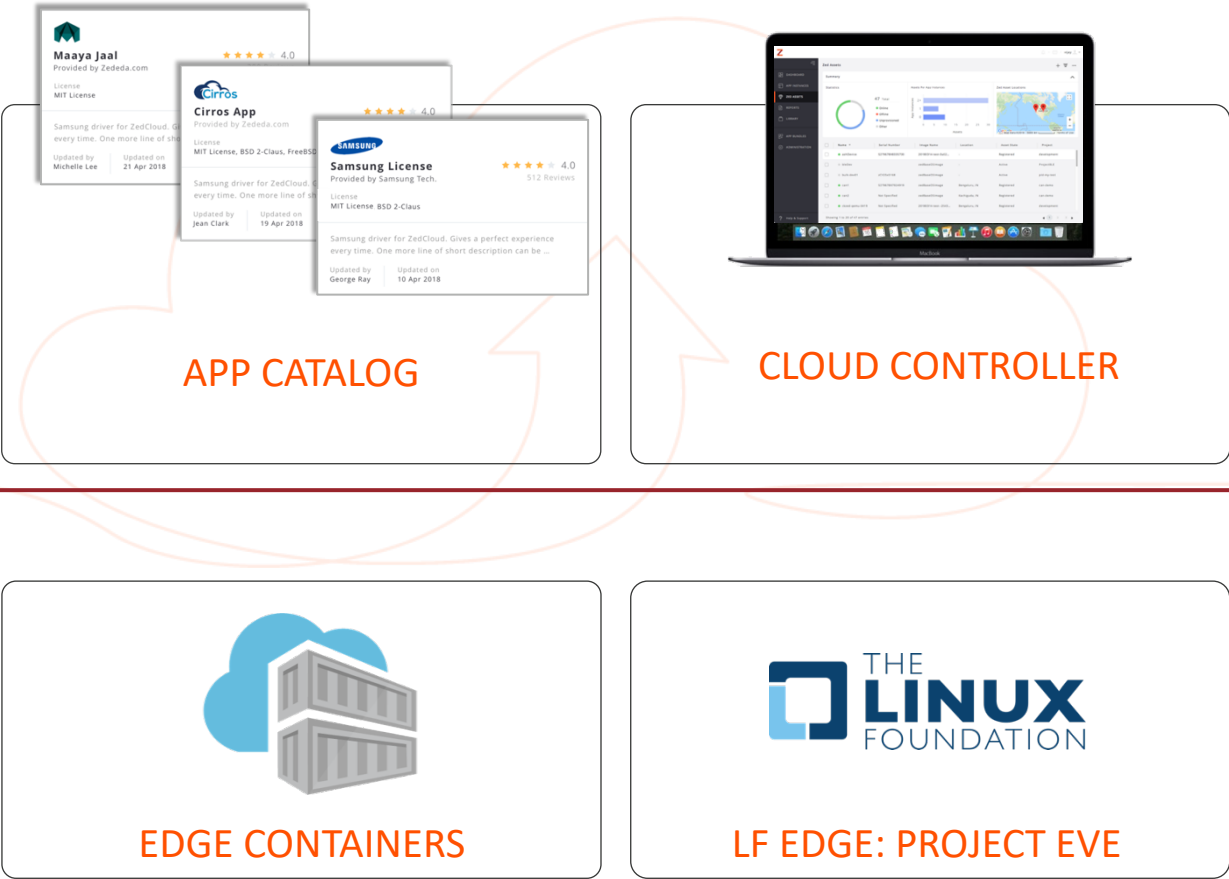


Guarding Against Physical Attacks: The Xbox One Story

Tony Chen
Microsoft
Platform Security Summit 2019
10/1/2019



4 pillars of complete Edge “Cloudification”

ZEDEDA
Edge Virtualization
Software



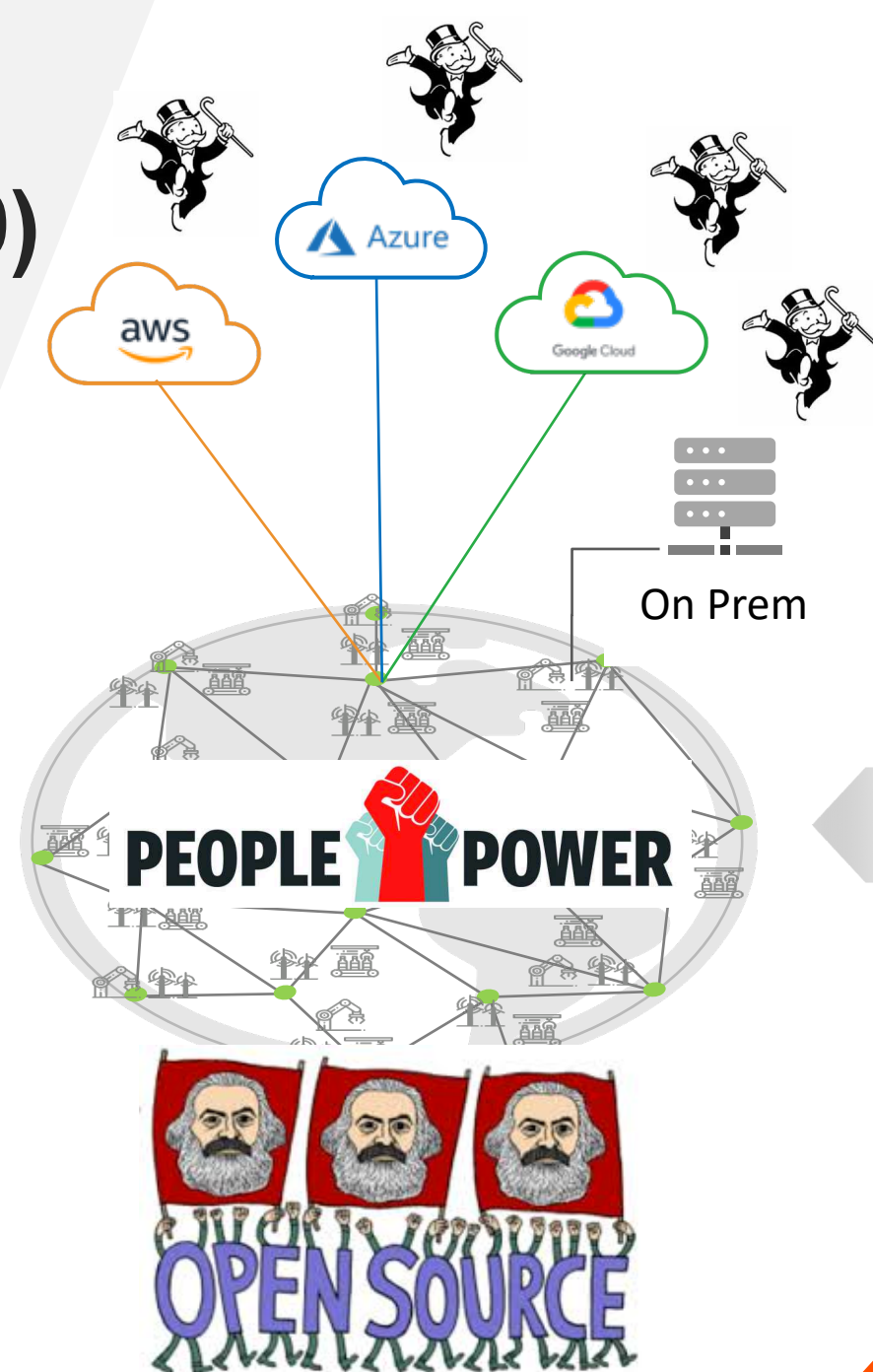
EVE is going to be for the Edge...

....what Android is for Mobile

		
App and OS Sandboxing	Hardware Assisted Virtualization	JVM
App Bundling	Edge Container (ECOs)	APK
App Deployment	Cloud Orchestrated & Pre-loaded	
H/W support	Intel, ARM (+RISC V)	Intel, ARM, MIPS

Key takeaways (by Roman in 2029)

- DevOps is a small chunk of “Cloud Native” phenomenon
 - An no, you can **NOT** have DevOps on your business card
- Marx was right...
 - ...but instead of communism we’ve got “Cloud Native”
- Edge Computing is the one final Cloud left
- We are living in a time of a massive transition
 - “Resistance is futile”
 - “All your base are belong to Software”
 - Your job is not guaranteed, but you may get paid anyway (although wouldn’t your rather have fun?)
 - Keep an eye on all the crises to follow, adapt!
 - Keep learning (especially from history) and...
 - ...have a LOT OF FUN!



Right before we went to print...

France, Germany step up effort to build rivals to U.S. cloud firms

2 MIN READ



ENVIRONMENT 10/26/2019 09:36 am ET

Long-Distance Eagles Bankrupt Research Project With Text Roaming Charges

Don't phone home.

 By Mary Papenfuss



An aerial night photograph of a city, likely San Francisco, showing a dense grid of streets and buildings illuminated by city lights. A prominent bridge, possibly the Golden Gate Bridge, is visible in the lower-left corner, stretching across a body of water. The overall scene is dark, with the city lights providing the primary illumination.

THANK YOU!

Follow EVE and LF Edge:

@eve_edge



@LD_Edge