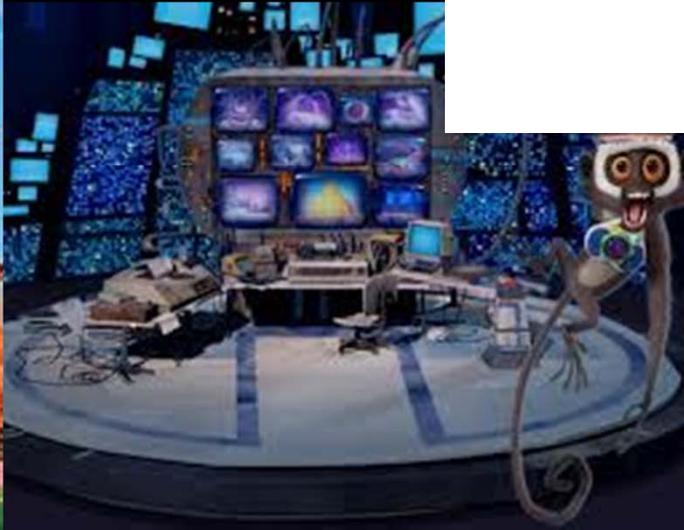
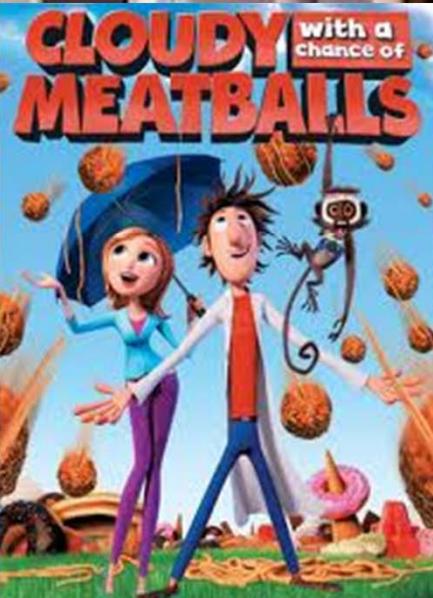


Cloud: Enabler or Enigma?



Cloud?

Huge market opportunity – Can't/shouldn't be ignored

\$14 Billion

Total addressable
Market by 2016
per Gartner

90%

IT workloads
not yet in the
cloud

\$3 Billion

Estimated AWS
revenue for 2013;
\$6-9B by 2015

Today's presenters

- **Vance Checketts**

- Big technology w/strong business background & Utah economic development success story

- **Justin Ball**

- Small technology w/strong engineering background re cloud & open source as enablers, especially for SMB's

- **Niel Nickolaisen**

- IT practitioner w/broad business & tech background re alignment & decision models for IT managers & executives

Cloud?

Common concerns

- Security / privacy
- Reliability / durability / availability
- Data access / portability
- System integration / leveraging existing IT
- Vendor lock-in

Cloud?

Marketecture

Clients

Web browser, mobile apps, virtual desktops, etc.

Software . . . as-a-Service

Apps like email, office productivity, CRM, finance, etc.

Platform . . . as-a-Service

Database, web server, tools, etc.

Infrastructure . . . as-a-Service

Computing, Storage, Networking, etc.

Cloud – Who/where is EMC?

The mountain behind the cloud; the wizard behind the curtain



EMC²

**BILLIONS
OF USERS**



**MILLIONS
OF APPS**



3RD PLATFORM

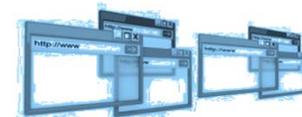
Mobile Cloud Big Data Social
Mobile Devices

**HUNDREDS OF MILLIONS
OF USERS**



LAN/Internet Client/Server
PC

**TENS OF THOUSANDS
OF APPS**



**MILLIONS
OF USERS**



1ST PLATFORM

Mainframe, Mini Computer
Terminals

**THOUSANDS
OF APPS**



Source: IDC, 2012

What do we all want?



Hybrid Cloud?

Business drivers

- Security / privacy
- Reliability / durability / availability
- Data access / portability
- System integration / leveraging existing IT
- Vendor lock-in

Big Data?

Characteristics	Traditional BI	"Big Data"
Source	ERP, CRM, etc.	Any – Social, mobile, etc.
Size	Terabytes	Petabytes → Hellabytes
Speed	Multiple batches/day	Sub-second updates
Structure	Relational database	N/A (HDFS, etc.)
System impact	Slow performance	b0rk3n!

Economic Success for EMC & Utah

- 2007 - Mozy acquisition (\$76m)
- 2008 - Iomega acquisition (\$213m)
- 2009 - Mozy receives multiple industry accolades
- 2010 - Planning for EMC expansion begins
- 2011 - Utah decision & incentive for 500 employees
- 2012 - Incentive for 250 more employees
- 2013 - Utah becomes a Center of Excellence for EMC

EMC²®

How does cloud computing
impact my business?

But really, you probably don't care.

Maybe you care about...

- Reducing cost
- Making money
- Reducing complexity
- Scaling
- ROI
- Improving customer experience
- Being cool

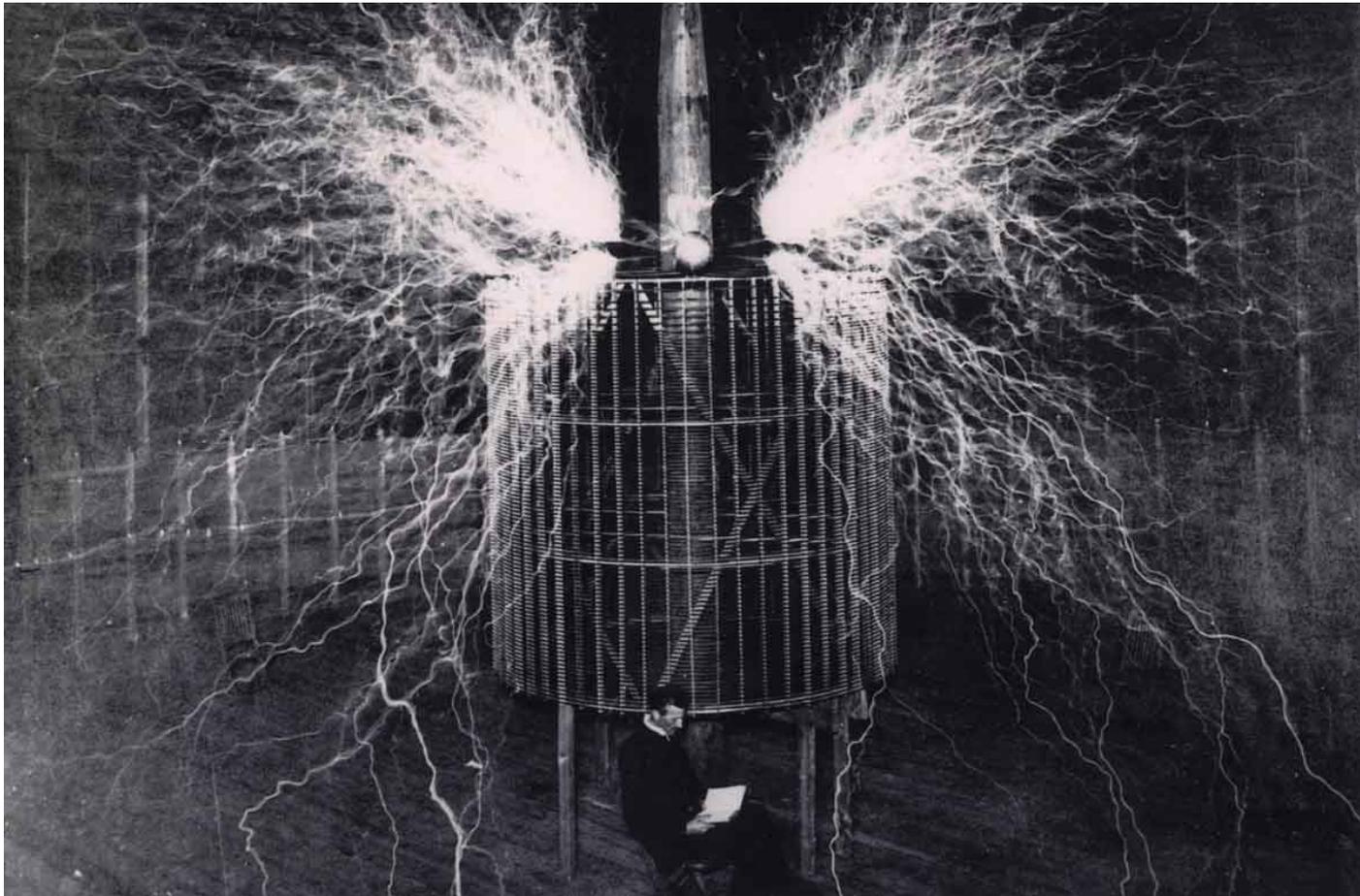
Or Maybe Cloud?



Why should I care?

CEO

Chief Electricity Officer



CTO

- Choose the right technology
- Make it cheap
- Make it perform
- Build it fast
- Make it scale
- Keep it under control

Cheaper? Really?

Email from Amazon



Dear Amazon Web Services Customer,

We are excited to announce price reductions for [Amazon EC2](#), [Amazon S3](#), [Amazon RDS](#), [Amazon ElastiCache](#), and [Amazon Elastic MapReduce](#). This is our 42nd price reduction since 2008 and we're happy to continue the tradition of making AWS more cost-effective over time.

The price reductions go into effect on **April 1, 2014** and will be automatically applied to your account. For additional price reduction details, please visit the [AWS blog](#).

Looking for more ways to stay up-to-date on the latest developments in the AWS Cloud?

- Join us at an AWS event near you. Find a [summit](#) or learn more about our global conference - [AWS re:Invent](#)
- Stay connected on [@awscloud](#) or [like us on Facebook](#)
- Contact a [cloud representative](#)

Re-invent the way you work with IT, with Amazon Web Services.

Sincerely,

The Amazon Web Services Team

Perform?

Numbers

- Every two minutes we take as many photos as all of humanity took during the 1800s
- 10% of all photos ever taken were taken in the last 12 months
- Twitter averages 5700 Tweets per Second but spikes to 143k Tweets per second
- Facebook 1.3 billion active users
- 48% of 18-34 year old Facebook users check Facebook as soon as they awake

300 milliseconds

Ilya Grigorik

- 0-100 ms Instant
- 100-300 ms Slight perceptible delay
- 300-1000ms Perceptible delay
- 1 second+ Mental context switch
- 10 seconds+ I'll come back later

Big data and little numbers matter

Fast?

Steve Blank

“A Startup isn’t a company it’s a hypothesis”

“Fail fast”

How do we fail fast?

- Build cheap
- Build fast
- Iterate
- Scale FTW

Monitor Twitter

- Flower Shop
- “Boyfriend Jerk”
- Process 5700 Tweets per second?
- By Keyword?
- By Location?
- Big data!
- Big money?
- Amazon Kinesis!

Scale?

Open Source

- 1991 Linus Torvalds open sources Linux
- Real innovation is opening of ideas
- Engineers start sharing code/ideas
- SourceForge
- 2008 Github launches
- Engineers share even faster
- Together we learn (still happening)

Cloud Computing

- 1950s we start sharing main frames.
- Post dot-com Amazon builds large data centers but find it is only using 10%.
- 2006 Amazon Introduces EC2 and S3
- EMC, Google, Microsoft, Oracle, IBM offer cloud solutions.
- 2013 Dotcloud shifts from hosting to Docker.io

Engineers Sharing SysOps Ideas

- Docker.io
- Doku
- Ember.js, Angular.js, React.js, RxJS - TC39
- SPDY
- CORS
- Smart CDNs
- Websockets
- WebRTC

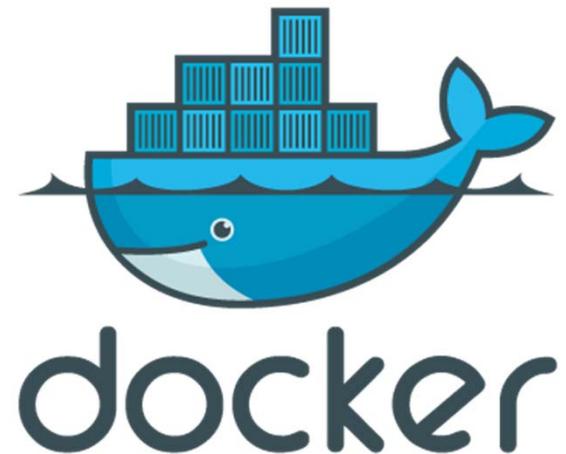
Share Code => Share Load

Control?



Replicable, Programmable SysOps

- Puppet
- Chef
- Docker.io



How do I start?

Cloudgineer?

You might be “cloud” enabled without
even knowing it

Cloud Services

- AtTask
- Instructure Canvas
- Tynt
- CitizenDish
- Money Desktop



canvas
BY INSTRUCTURE



<http://www.atomicjolt.com>



Analytics

- Omniture (Adobe)
- Domo
- Google Analytics
- Ingroove



Email Services

- SendGrid
- MailChimp
- MadMimi



SendGrid



MailChimp

Mad Mimi

Hosting

- Heroku
- Digital Ocean
- Amazon EC2 + S3
- Google App Engine
- Bluehost



Infrastructure Services

- Iron.io
- Firebase
- IActionable
- Amazon MapReduce
- Amazon Kinesis
- ElasticSearch
- MapR



Firebase

IActionable

amazon.com

elasticsearch.



Closing ~~Advice~~ Cliché

Stand on the shoulders of giants

Try New Things

Build cool stuff

<http://www.justinball.com>

justin@atomicjolt.com

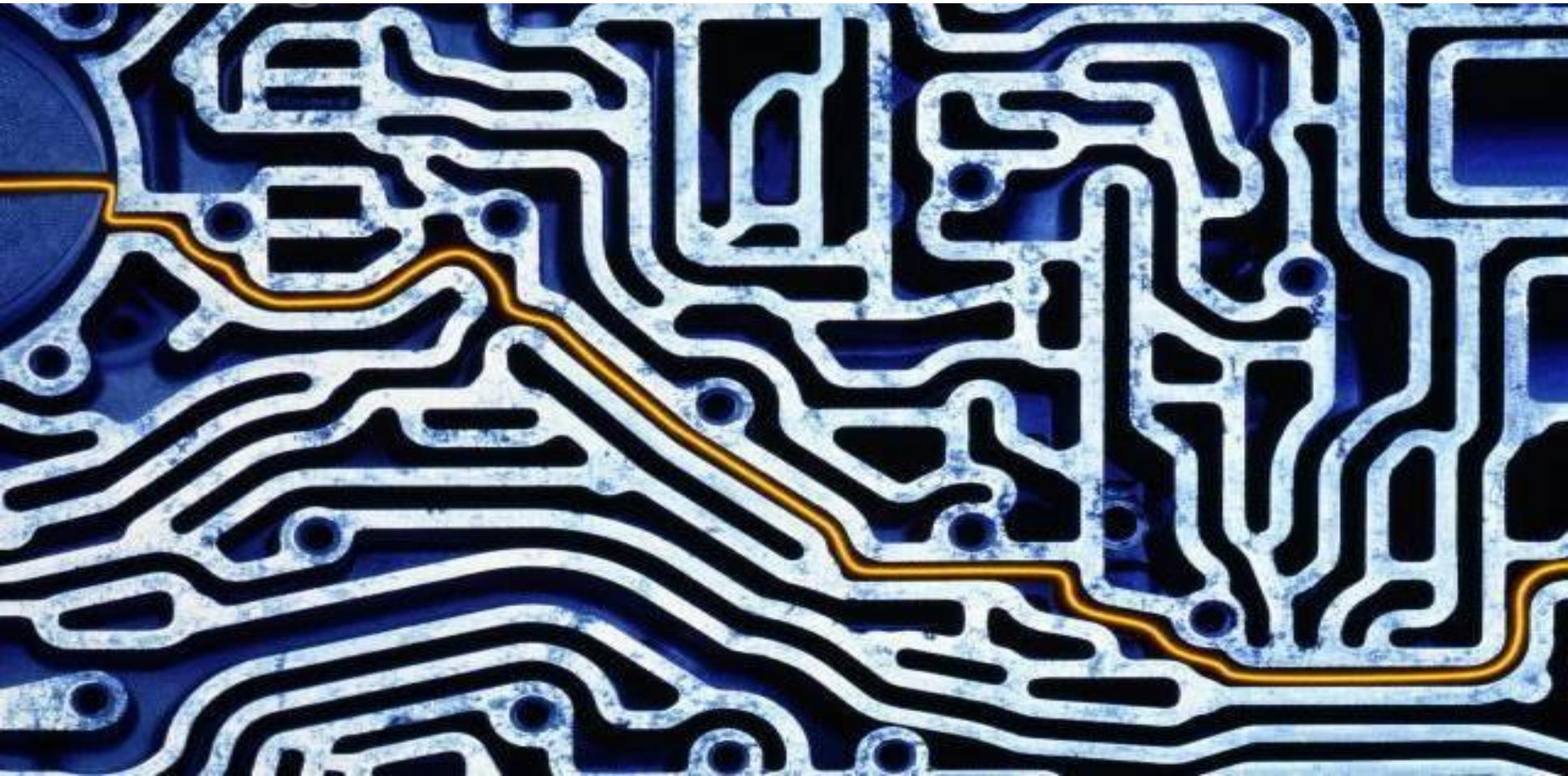
@jbasdf

The Practices of Transformational Leaders

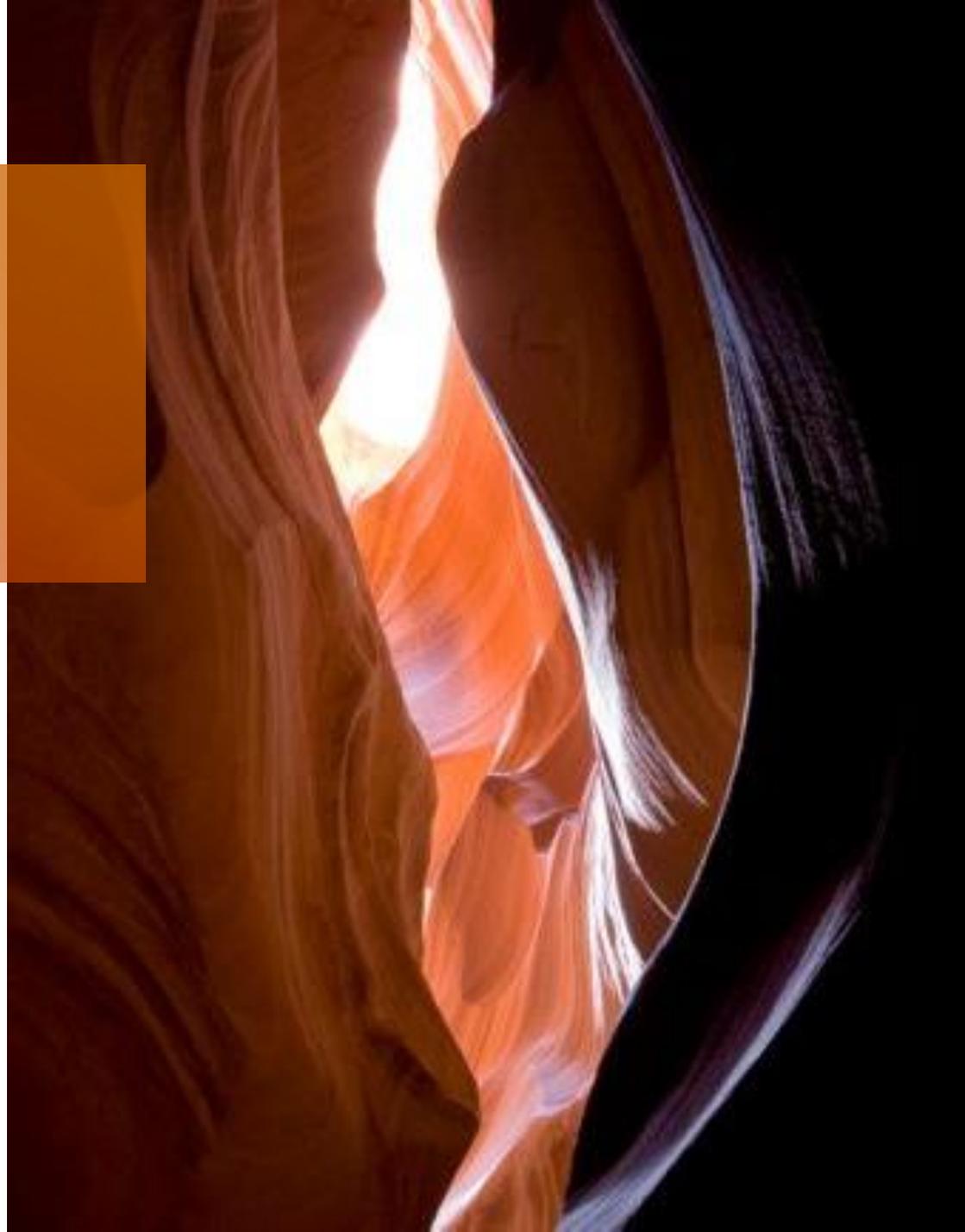


nnick@octanner.com

My belief, “The biggest change to the enterprise since Al Gore invented the internet.”



How
So?



Two Drivers

Technology-driven Competition

Breakneck pace, new business models, new competitors

No IT Monopoly

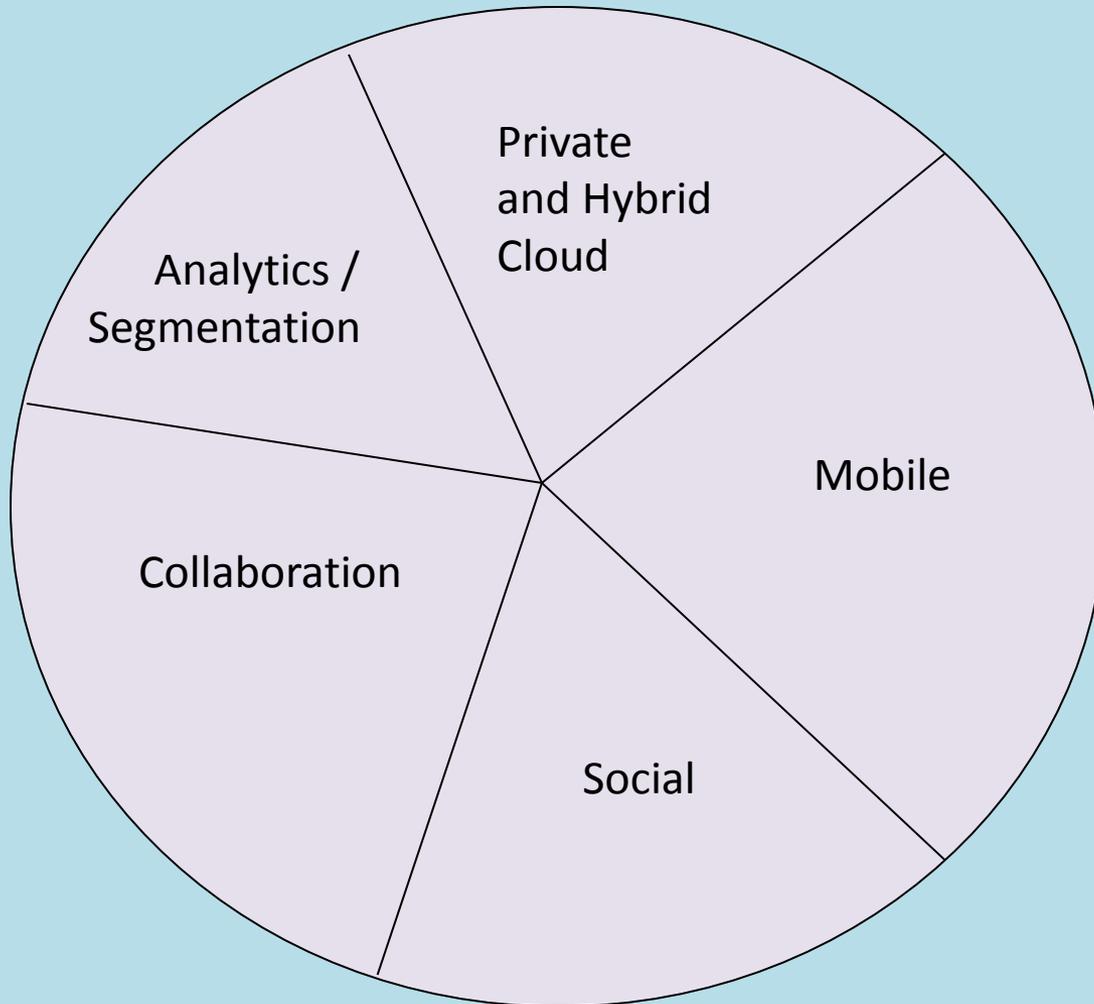
Get any IT (and other) service anywhere

- \$129M
- 6,000 square feet
- 2.5 megawatts
- 1,000 trillion operations per second (still top 25 super computer)



By the way, IBM built this one in 2009 and replaced it in 2012 for \$1.3M.

My World Today

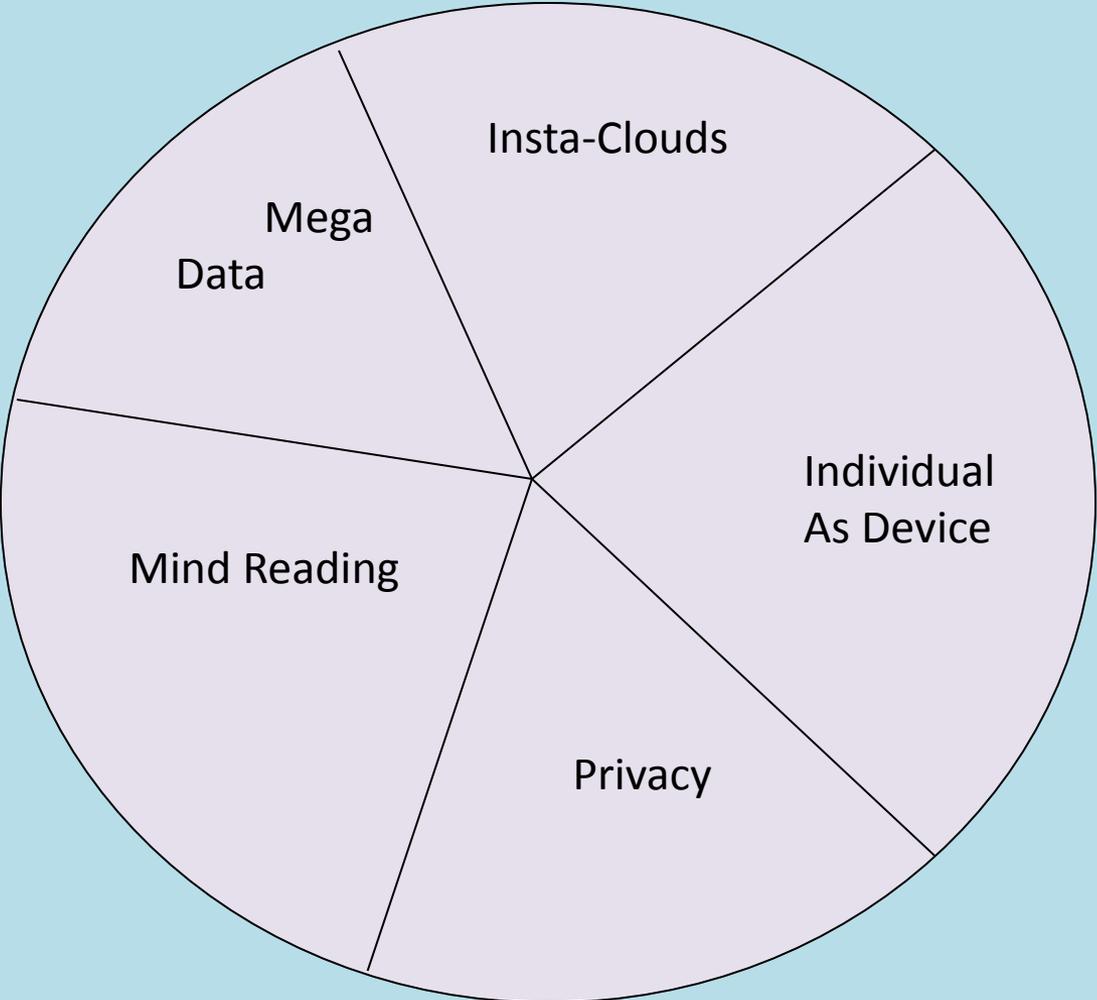


+

**Everything
Else**

(Software Dev,
Ops, Legacy,
Budgets,
Staff, Vendors,
Etc)

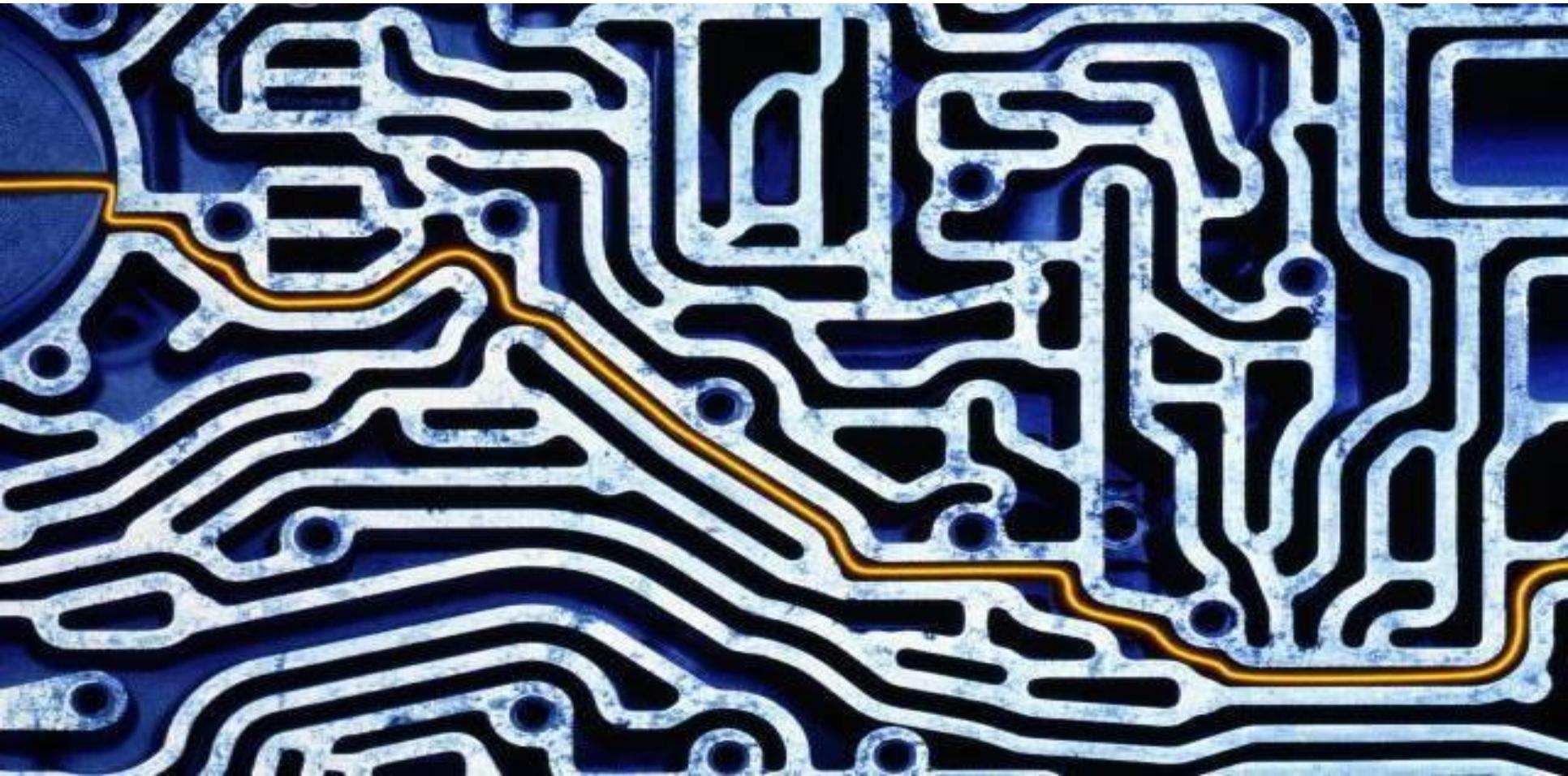
My World in 2-4 Years



+

Everything Else
(Mobile, Analytics, Social, Software Dev, Ops, Legacy, Budgets, Staff, Vendors, Etc)

Like I said, “The biggest change to the enterprise since Al Gore invented the internet.”



**But, this disruption
creates amazing
opportunities**



What Do I Do?

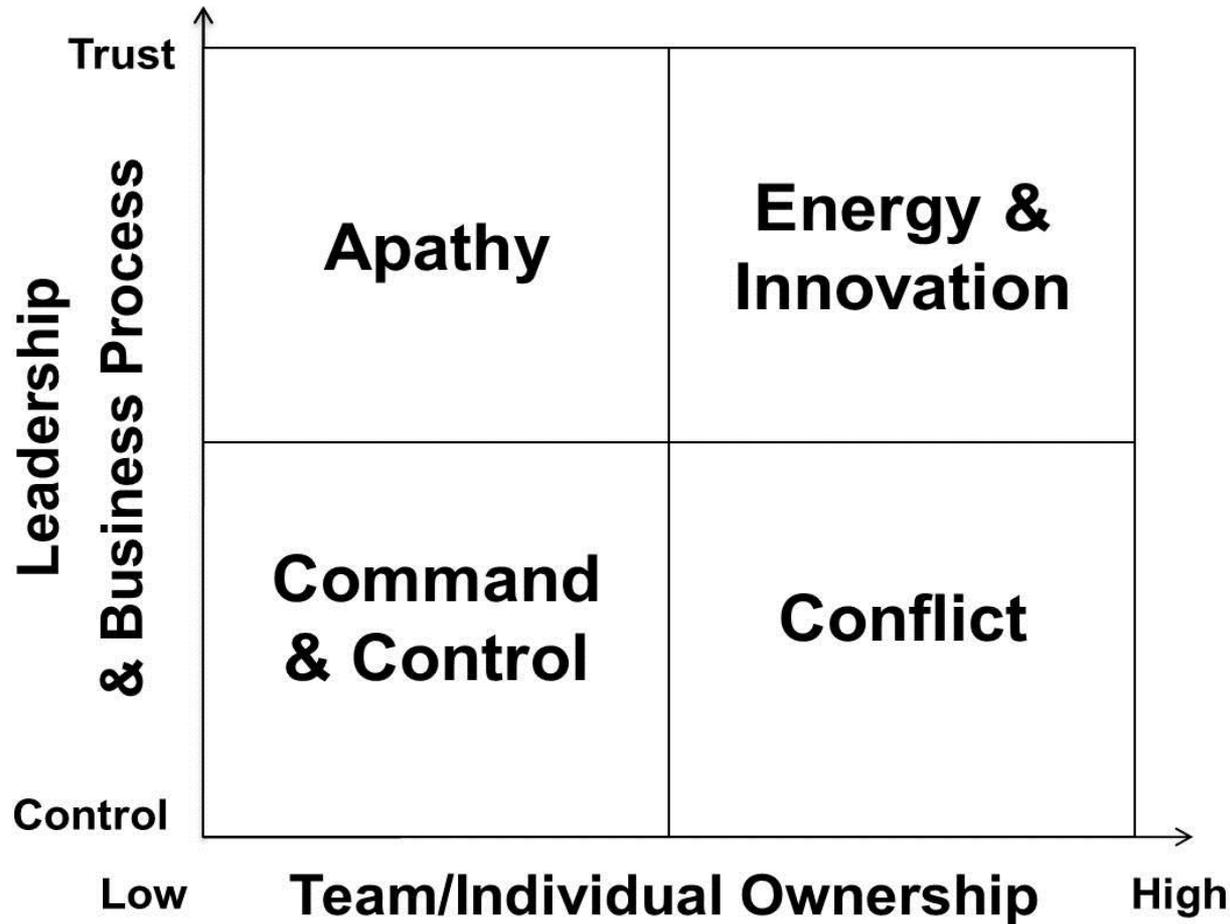
Get to continuous
transformation



Sounds nice but how?



Create a Trust / Ownership Culture

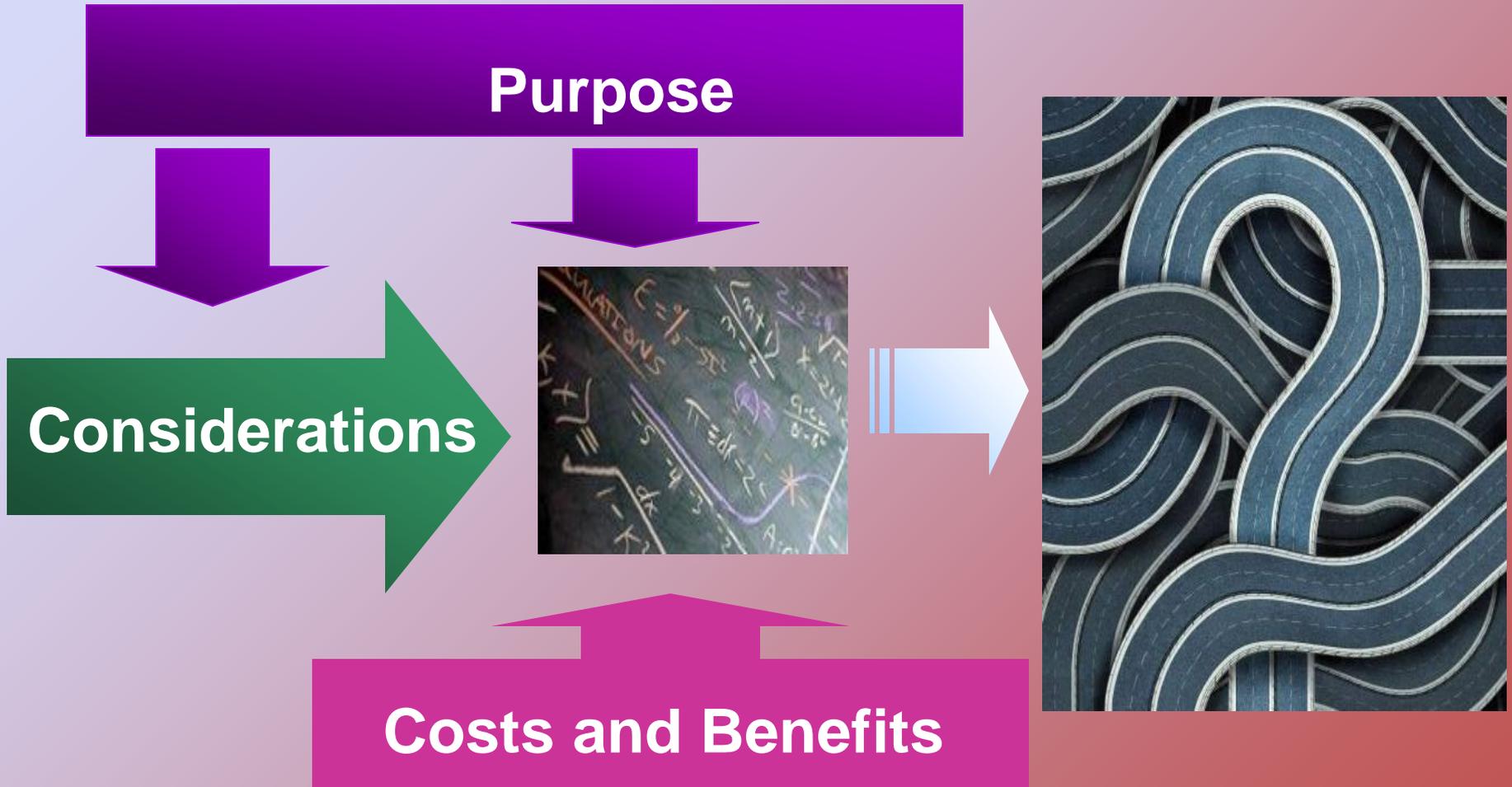


Make great, accurate,
rapid, and market-aligned
decisions

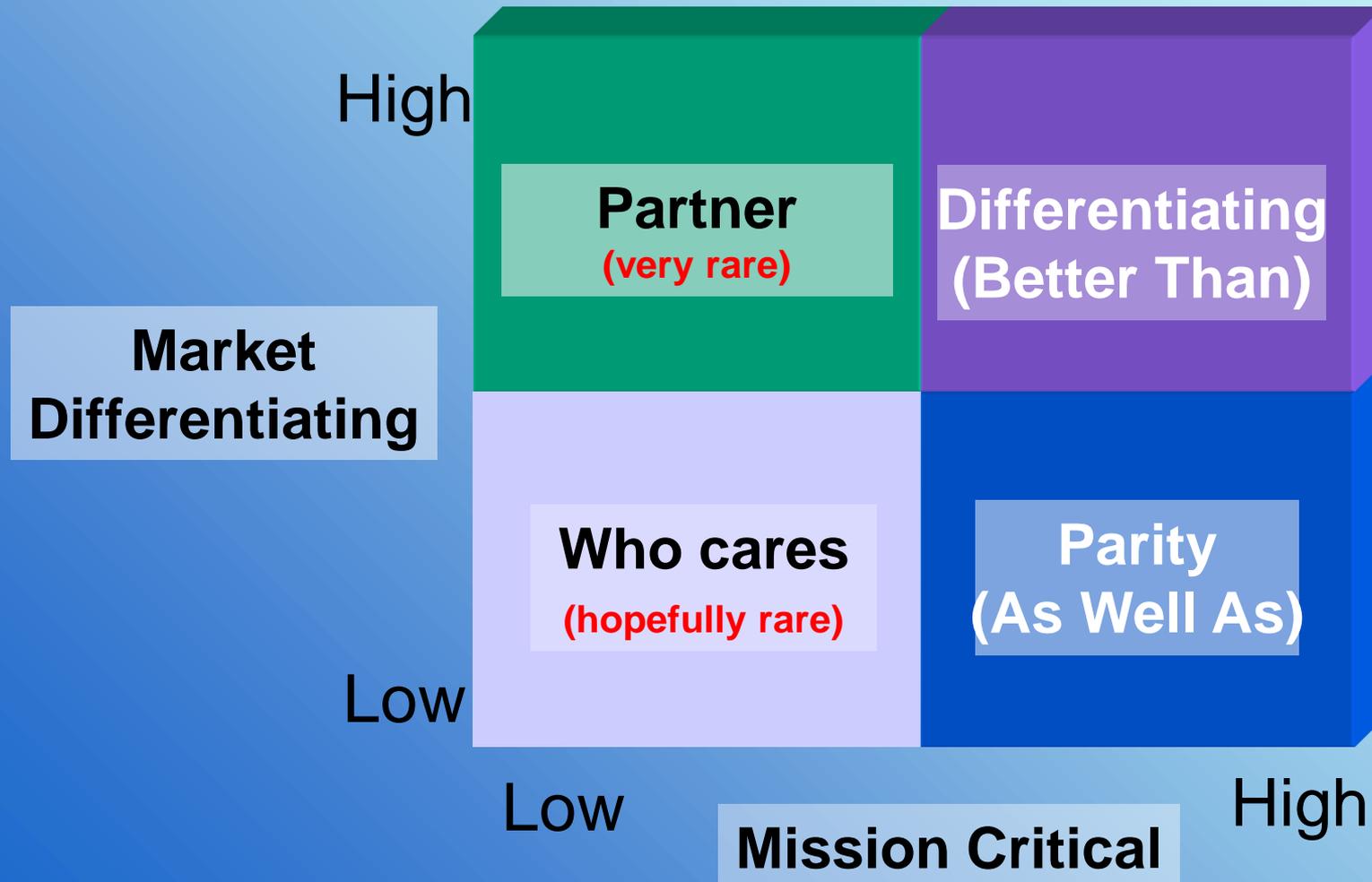
Sounds nice but how?



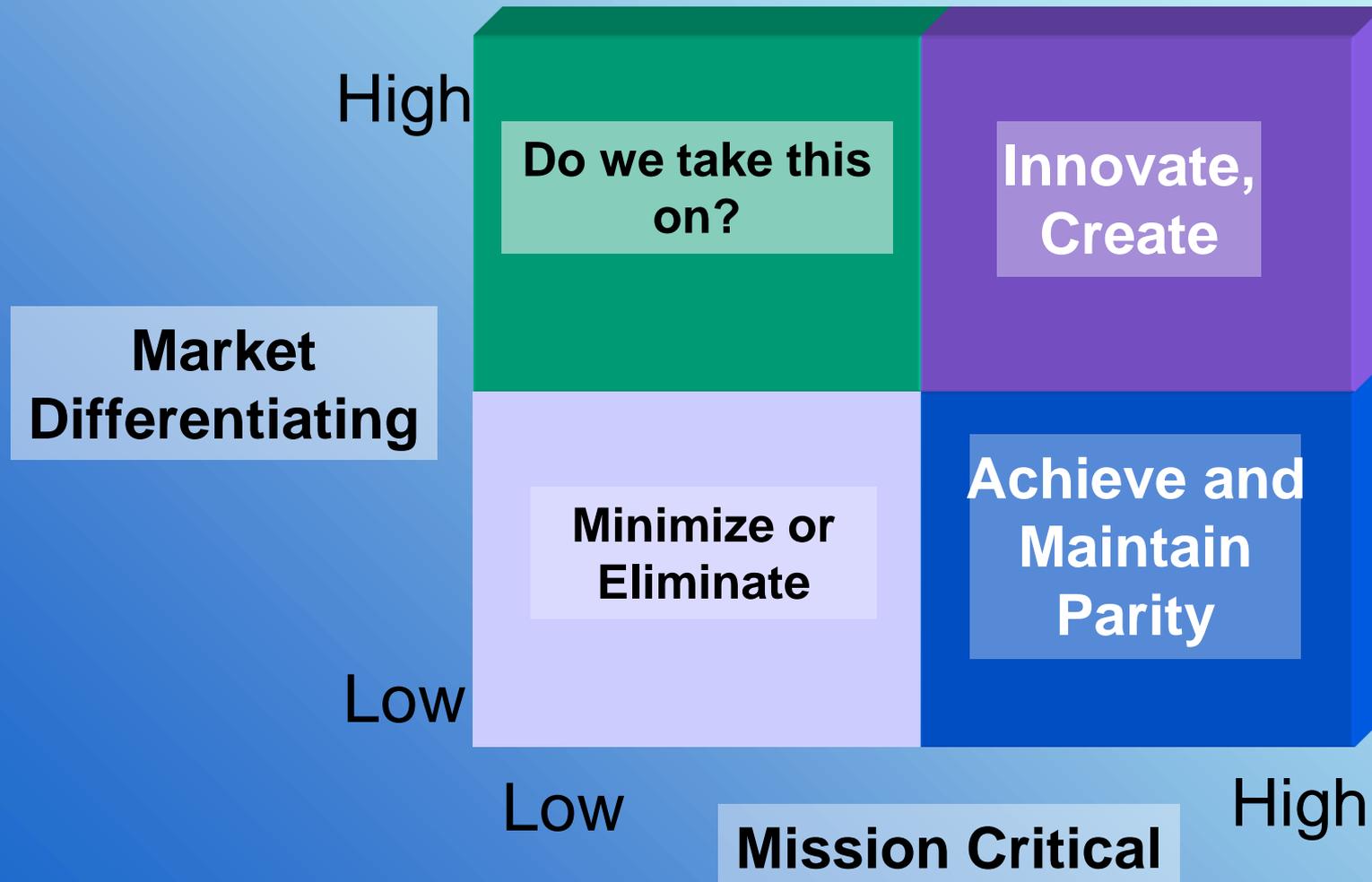
Business Value Model



My Operating System: Purpose Alignment Model



In Practice



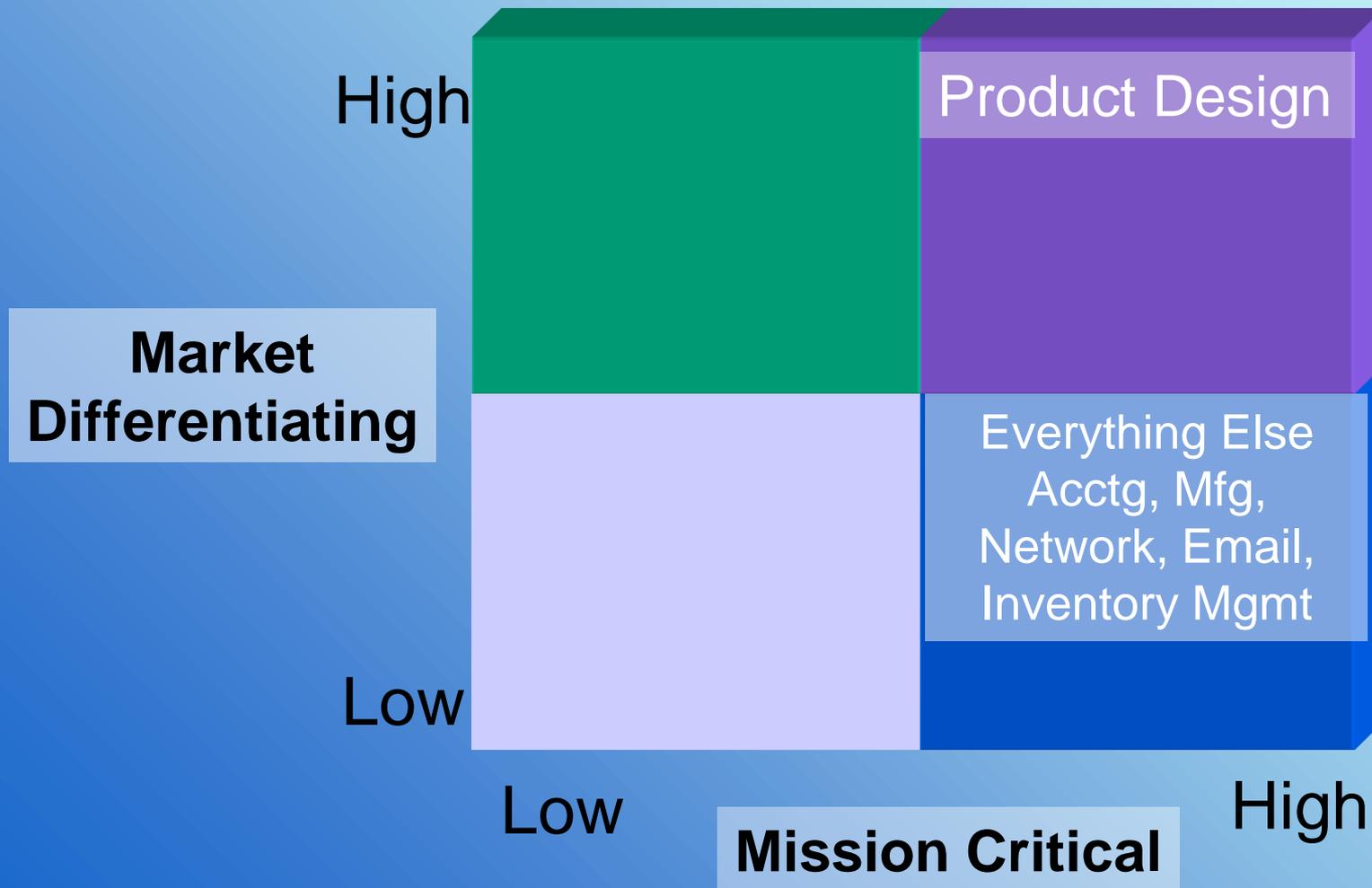
The Differentiating Rules

Rules	How?
Always Be the Market Leader	Innovate now and forever
Focus	Have 1-3 specific things you do better than anyone else
Own Differentiating	You cannot outsource your innovation

The Parity Rules

Rules	How?
Fill Any Gaps Because Gaps Kill	Adopt Best Practices – adopt the innovation of market leaders
Eliminate Risks Because Risks Kill	Simplify – complexity increases risks and reduces agility
Create Capacity To Focus Resources on Innovation	Standardize – there is only downside to exception handling of Parity activities

Example – Medical Device Company



strategy = sustainable
competitive advantage



4 important questions:

1. Who do we serve?
2. What do they want and need most?
3. What do we do – better than anyone else – to meet these wants and needs?
4. What is the best way to provide this?

the **“billboard”** test...

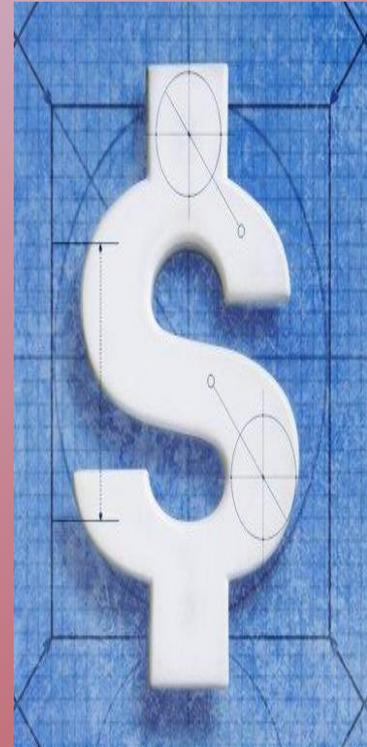
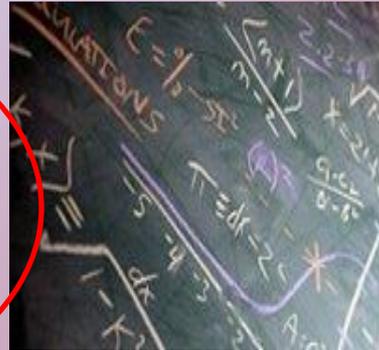


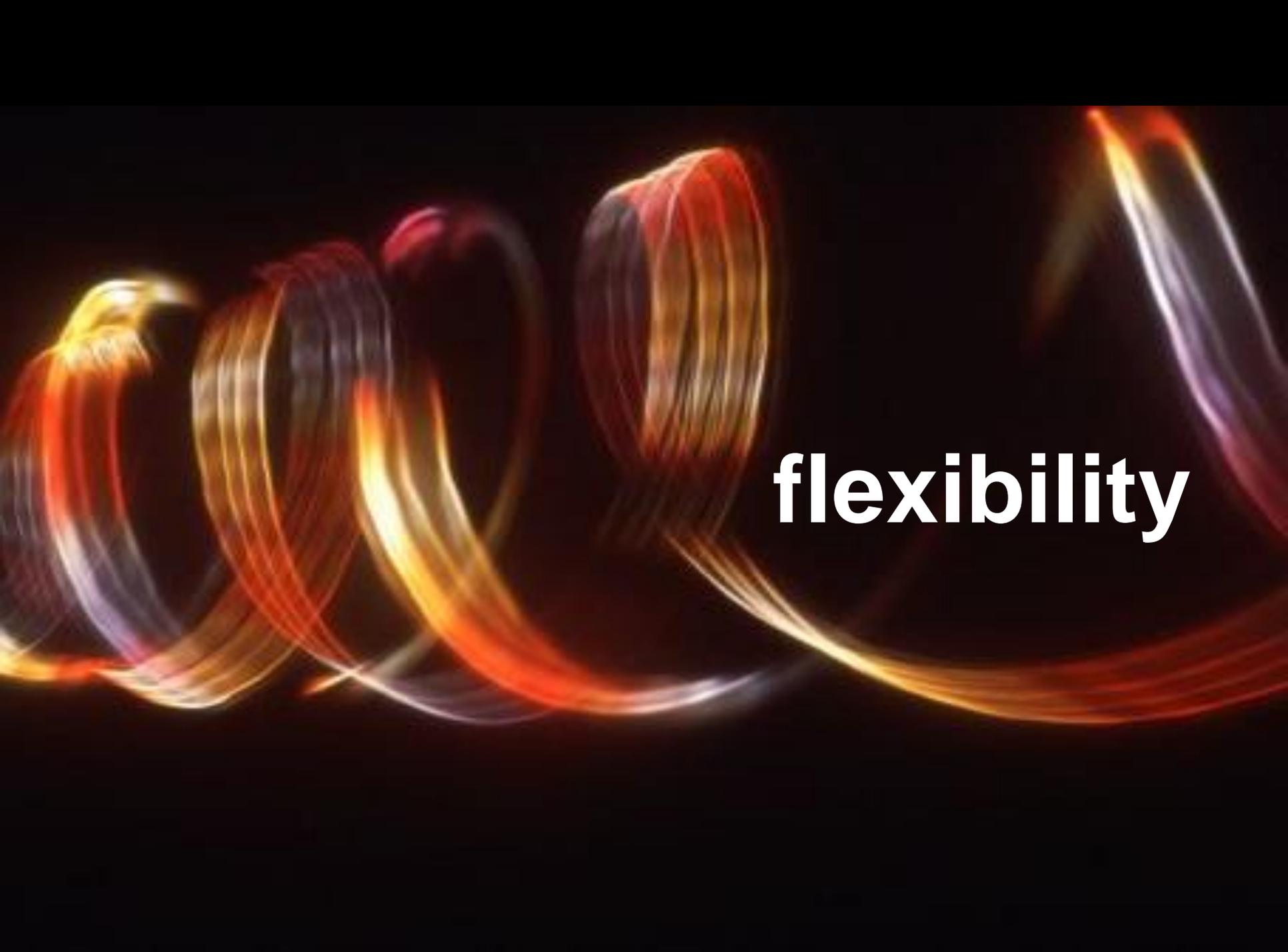
Don't worry about our implants,
you should see our **Chart of Accounts!**

Business Value Model

Purpose

Considerations



The image features a series of vibrant, multi-colored light trails (orange, yellow, and purple) that curve and loop across a black background, creating a sense of motion and flexibility. The word "flexibility" is written in a bold, white, sans-serif font, positioned in the lower right quadrant of the image.

flexibility

dependencies



Time to

Benefit





time
to
market

complexity

team size

mission **criticality**

team **location**

team **capacity**

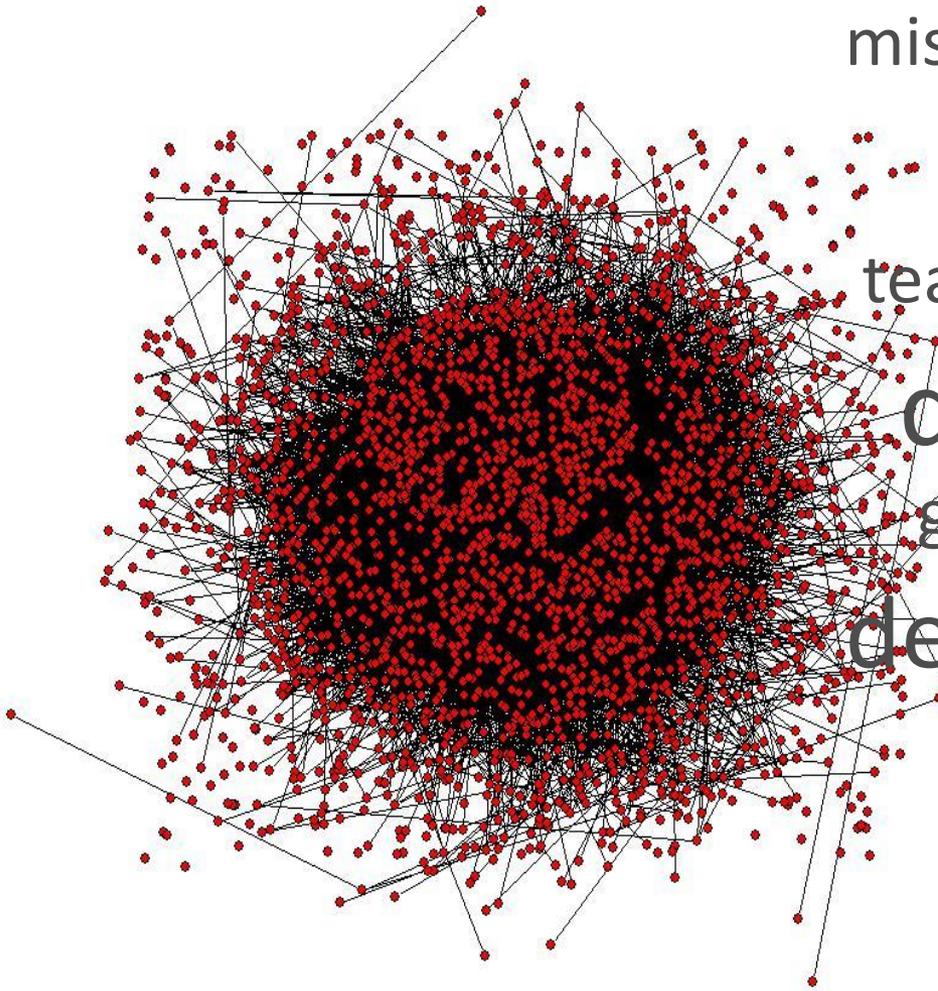
domain

knowledge

gaps

dependencies

technical complexity



uncertainty

market

uncertainty

technical

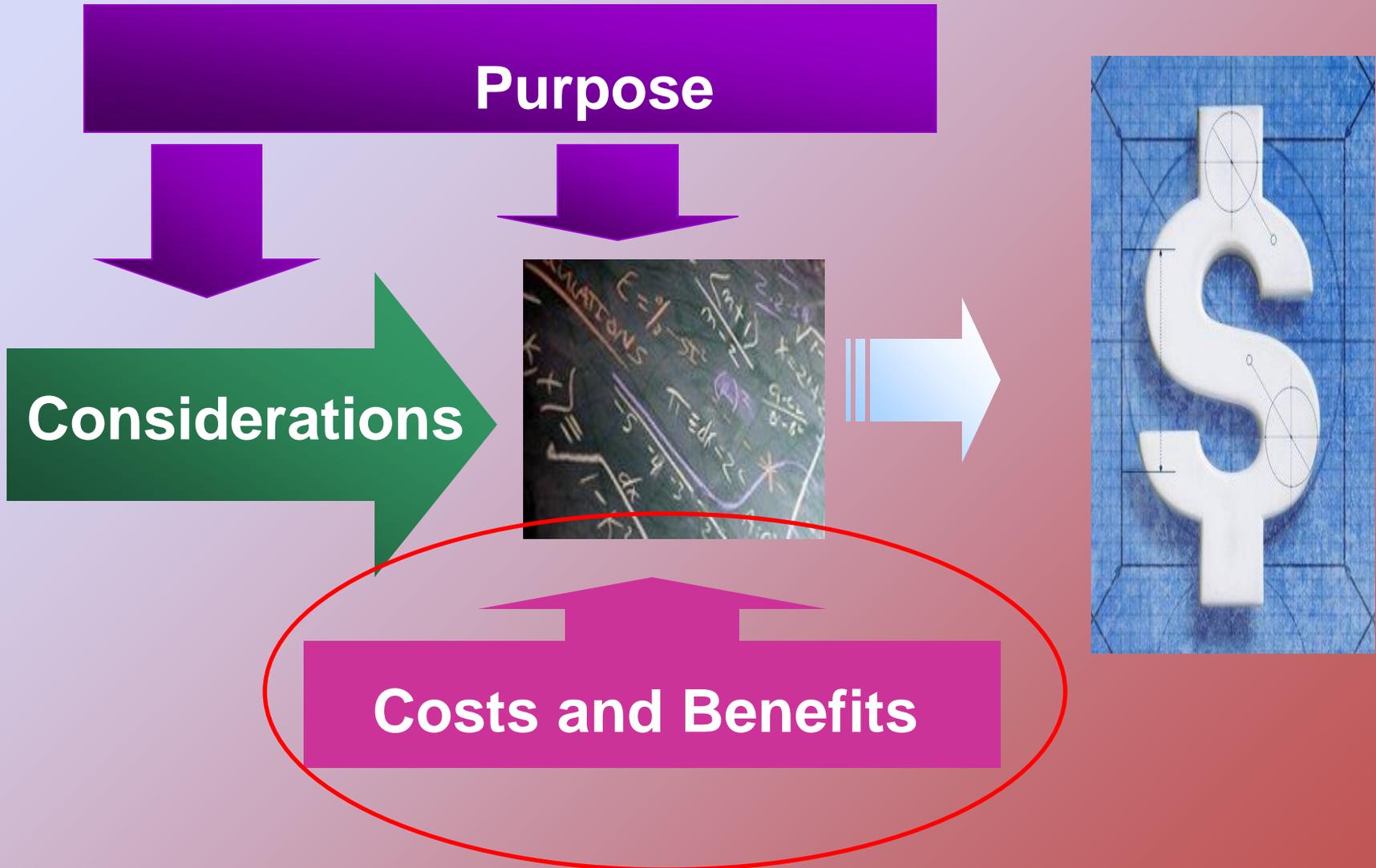
uncertainty

project duration

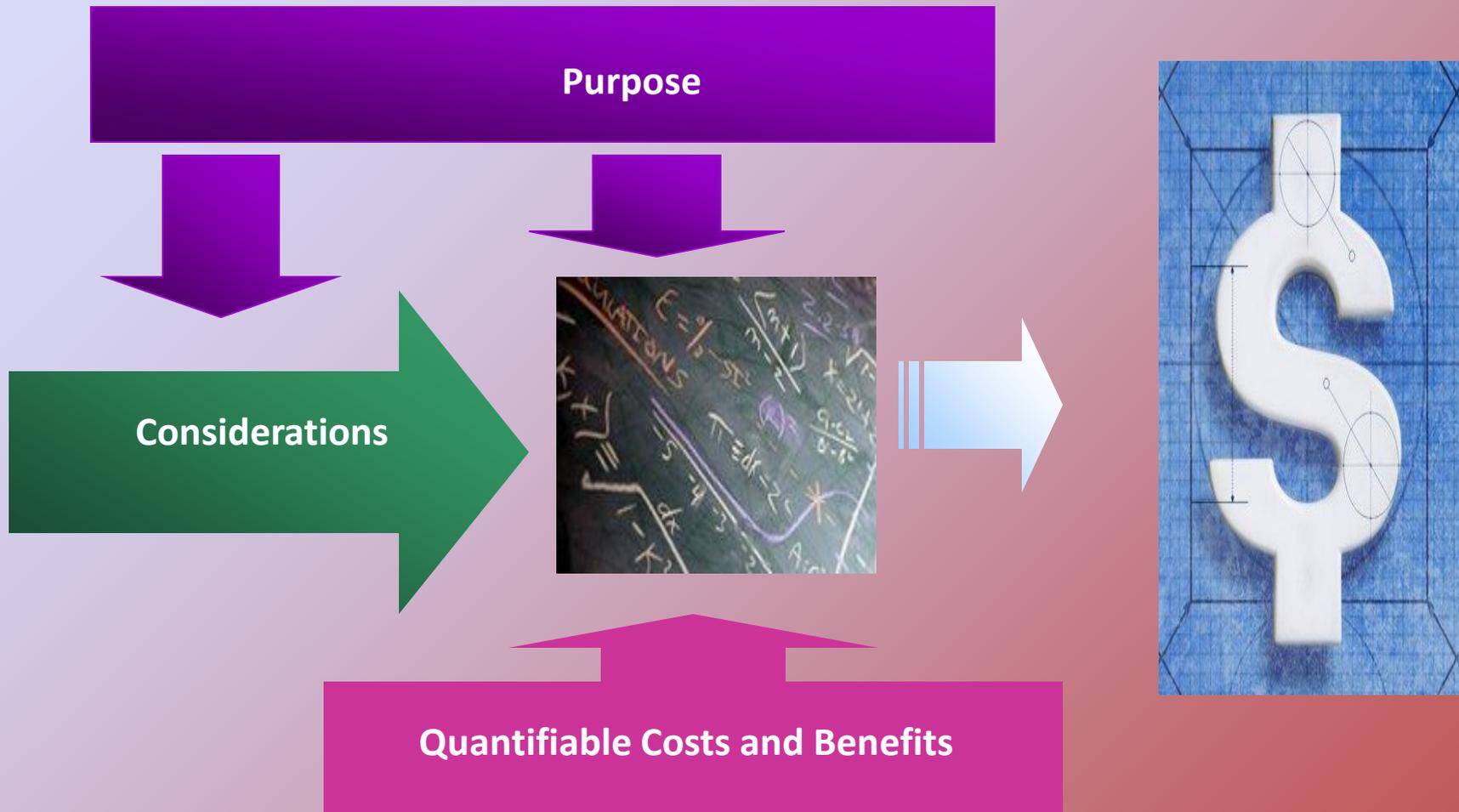
dependents



Business Value Model



Business Value Example – Cloud or On-Premise?



Cloud or On-Premise Storage

Purpose? Parity

Costs? Add more on-premise or
“use” cloud storage?

Benefits? Equal

Considerations? Staff skills, data
security, area of staff focus, et
cetera

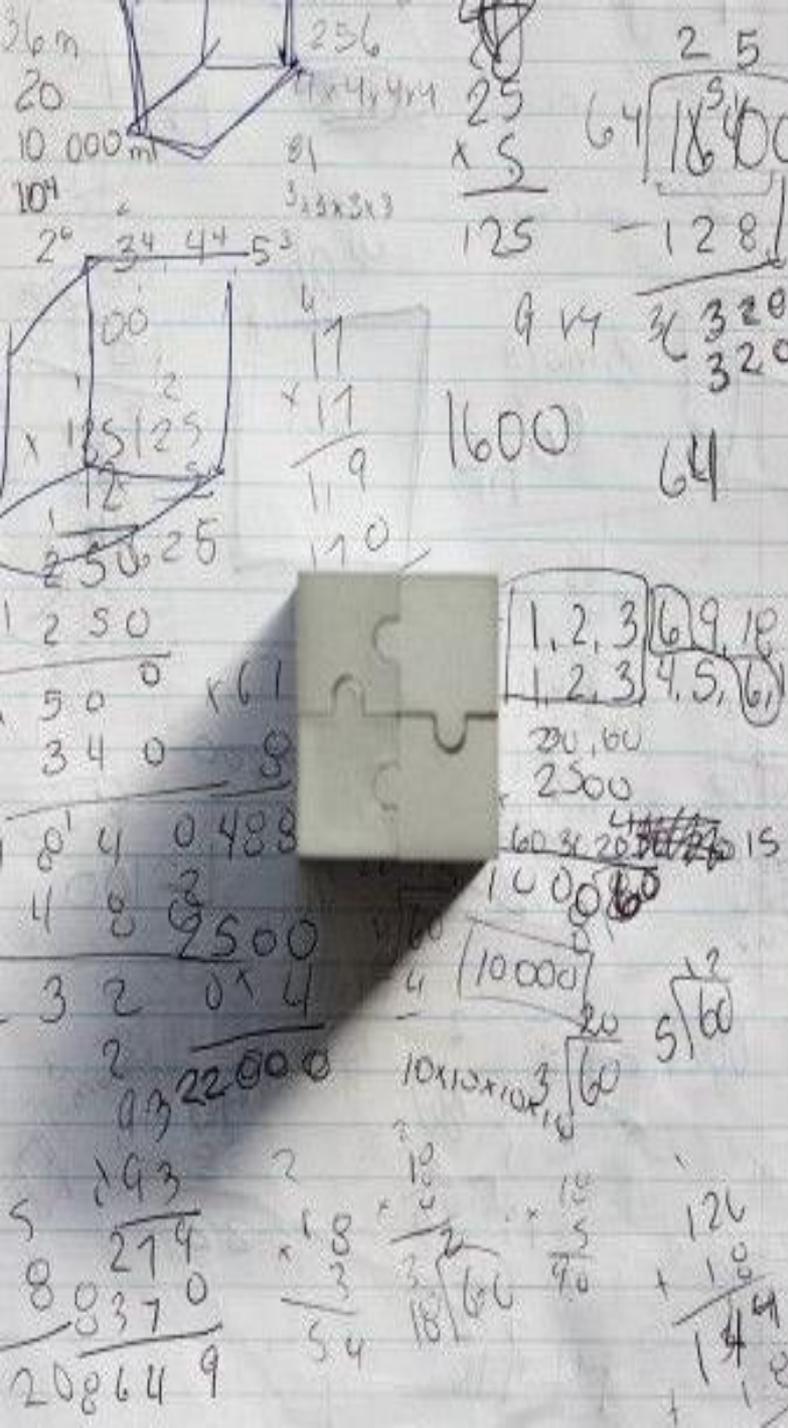
Cloud or On-Premise Phone System

Purpose? Parity

Costs? Cloud costs more

Benefits? Equal

Considerations? Flexibility,
scalability, staff allocation,
technology refresh, et cetera



Process:

Define the hard costs and benefits

Brainstorm and prioritize the considerations

Balance the costs, benefits and considerations



nnick@octanner.com