IDEA CAPSULE 3: GRIDMARKETS

TOPIC: CHANGING THE WORLD ONE FLOP AT A TIME

SPEAKER: **HAKIM KARIM,**
DIRECTOR & CO-FOUNDER, GRIDMARKETS

In a Nutshell

- GridMarkets has built a patent-pending platform to conveniently and securely share excess Cloud capacity

- Animators, architects, engineers and others can leverage many globally-positioned servers for computationally intensive problems at the push of a GridMarkets button

- Over 100 global animators, studios and architects served with over 1500 (rendering) jobs since Nov 2013

- Market opportunity exceeds $US10bn with use cases in biotech/pharma, engineering, financial services, etc.

- Seeking $US5m to accelerate our plans to drive revenues to $US50m in 4 years.

Founders

>50 years technology & business management experience

Hakim Karim

- 25+ years in IT development, management and innovation
- Accenture, Goldman Sachs and Thomson Financial/Reuters
- 3 prior start-ups
- >US$30m annual revenues
- Endeavor Entrepreneur

Mark Ross

- 25+ years in IT management
- CIO of AIG and Sunlife in Asia
- Winner of 2009 IDC innovation award for Cloud Computing
- Founder of Asia and Middle East Cloud Computing Associations
- >$US200m budget & 800 staff

Great Team and Advisors

Navin – Systems engineering guru

Andy – Networking & dev ops ninja

Babu – Front-end wizard (part-time)

Faiz – Operations & testing gangster

Mike – Chairman. Serial entrepreneur with exits to Microsoft, Reuters et al.

Tad – Ex-CTO of Huawei Symantec & Lagato

Jay – Serial entrepreneur Technology & Telco specialist

Jesper – Biz dev (Japan)

We're hiring! Please visit **www.GridMarkets.com/hiring**
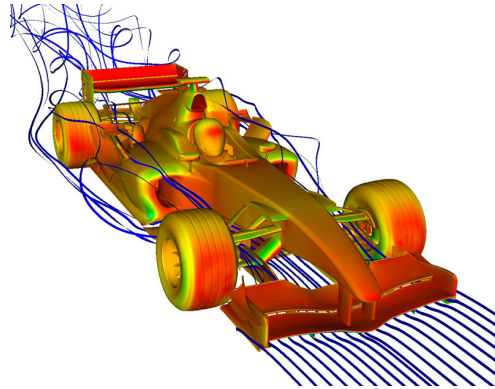
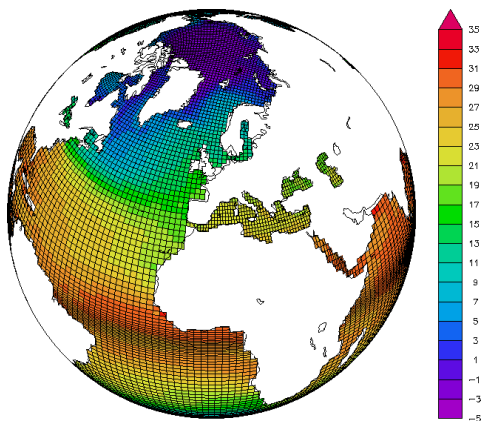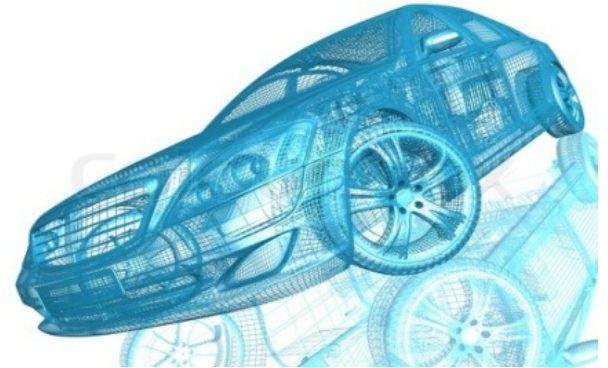# Computationally Intensive Problems

DNA Sequencing

Computational Fluid Dynamics

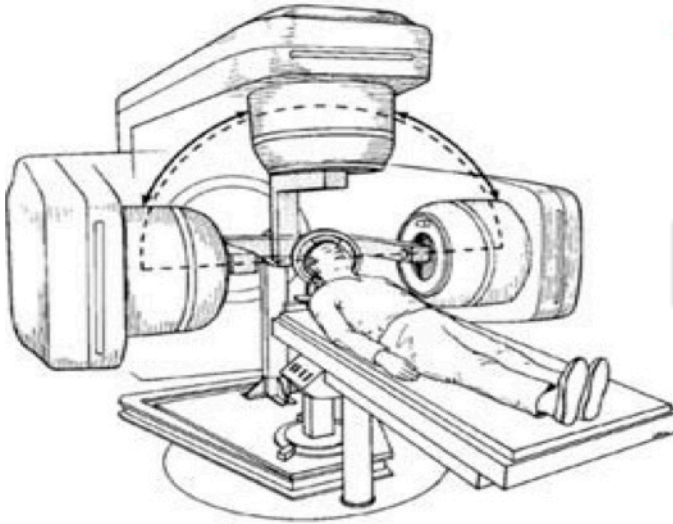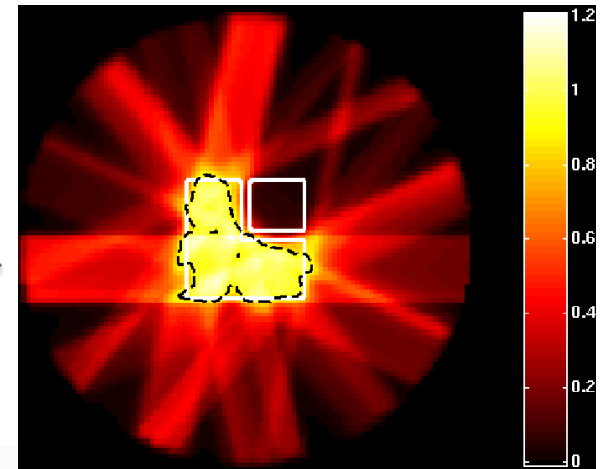CAD/CAM

Climate Modeling

Anti-money Laundering
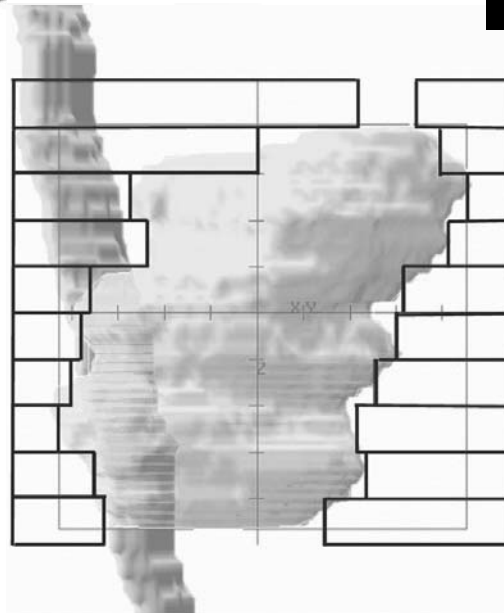
Graphics Rendering

Radiation Therapy for Cancer

Where to cut?

Modeling tumors is computationally intensive

Greater accuracy = less destruction of healthy cells

"Shrek's Law" (on top of Moore's Law)

50M core hours

40M

30M

20M

10M

5M

Shrek 1
2001

Shrek 2
2004

Shrek 3
2007

Shrek 4 (3D)
2010
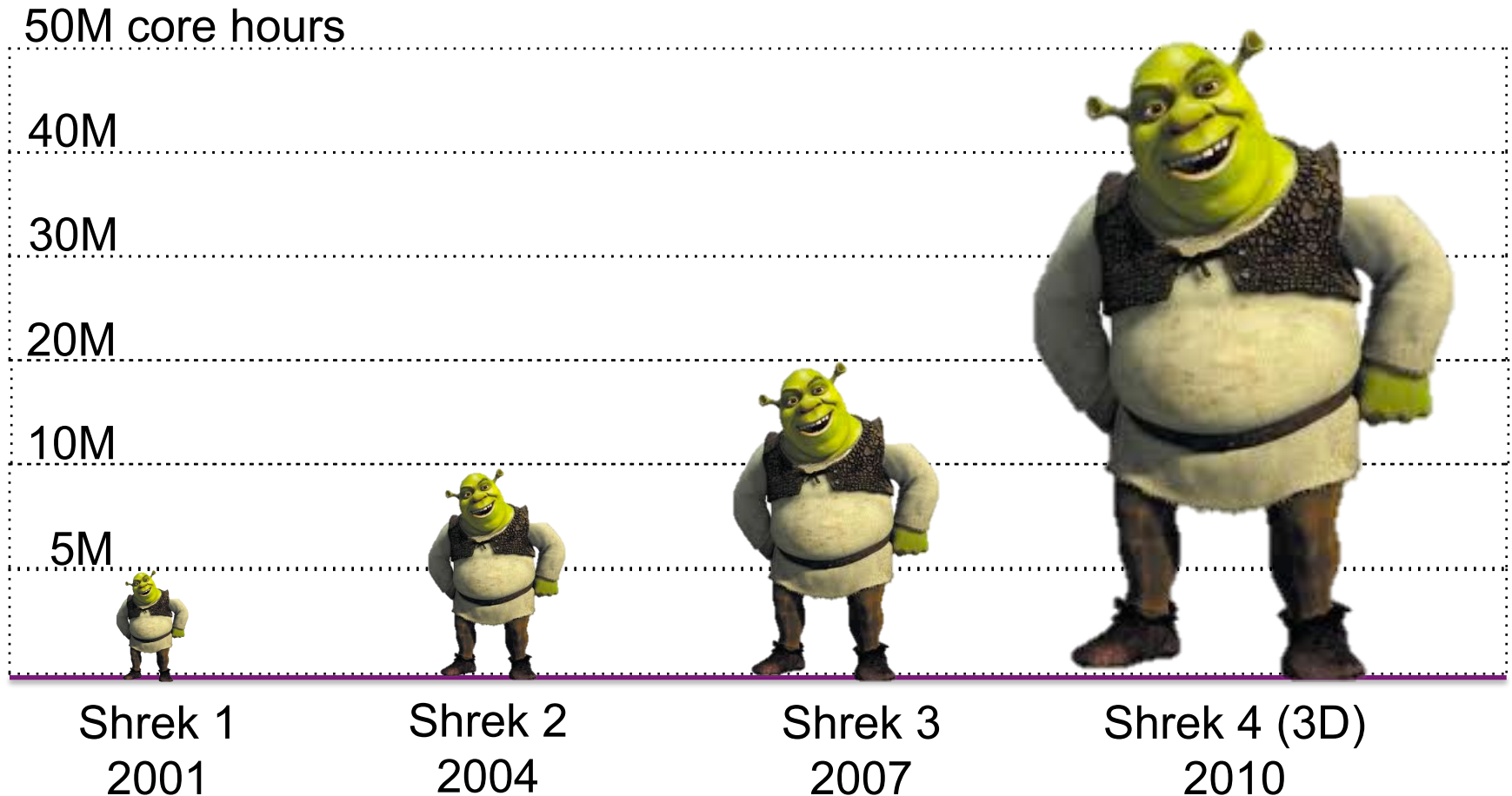
Shrek 7?

48 frames per second (e.g. Hobbit) @ 4K resolution

>1bn CPU Hours?!

Martin Scorsese's Hugo (2012)

150,000 CPU hours

US$35,000

in *electricity*

EACH TIME

Challenges/Risks

Risk	Large Firms	SMEs
Technical	✔	✖
Operational	✔	✖
Economic	✖	✖
Time to Market	✖	✖

Many Other Use Cases

Media
- Video transcoding
- Web searching

Engineering
- Computational fluid dynamics
- Finite particle analysis
- Mesh generation
- Heat transfer analysis
- System dynamic analysis
- Nanotechnology research
- Load & performance testing

Financial Services
- Risk management
- Anti-money laundering
- Insurance processing
- Market modelling

Pharma/Bio-tech
- Molecular & genome searching/sequencing
- Protein folding
- Biology simulation
- Multi-modal biometrics
- Drug discovery
- Molecular modelling
- Proteomics

Earth Sciences
- Climate modelling
- Geological (oil & gas) exploration
- Earthquake detection

Govt. & Research
- Prime number search
- Particle physics
- Quantum force modelling
- Astronomical modelling and data analysis
- Cryptography
- Cyber security

Global Market Demand

US$10 – 100 billion*
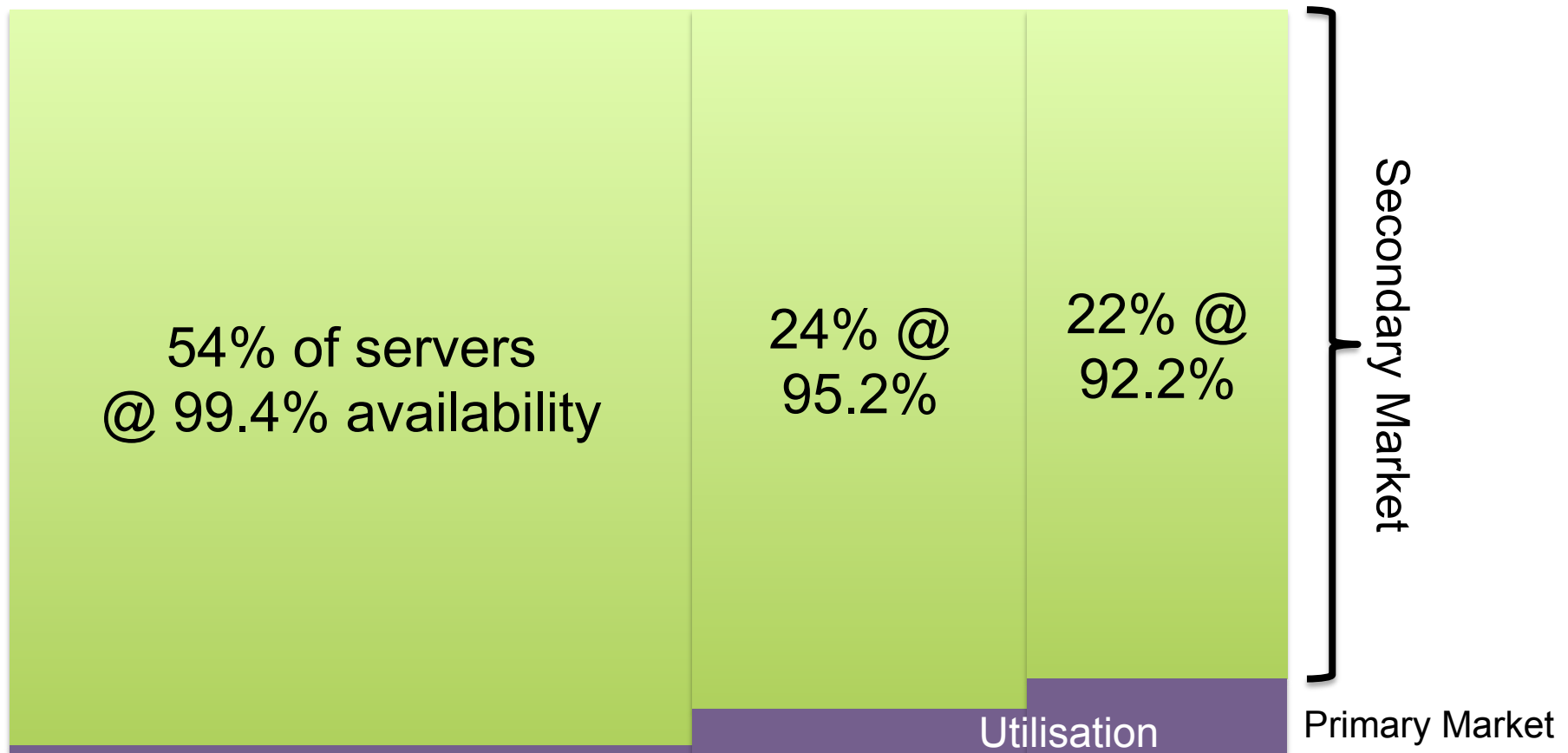
Doubling every 3-5 years

*Extrapolated from EC-funded research projects using Grid computing

The Paradox of Abundance

>95% Wasted Capacity!

54% of servers @ 99.4% availability

24% @ 95.2%

22% @ 92.2%

Secondary Market

Primary Market

Utilisation

Uptime Institute: 88-94% of data centre power used to run idle servers
Excess capacity can be made available at marginal cost

13

GridMarkets

A private B2B (secondary) market for excess CPU capacity

- Technical platform
- Commercial model
- Legal framework

Sellers own and operate machines; only provide excess capacity

- Zero capital cost to GM
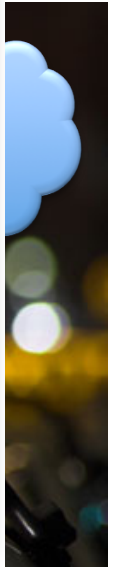- Practically unlimited supply

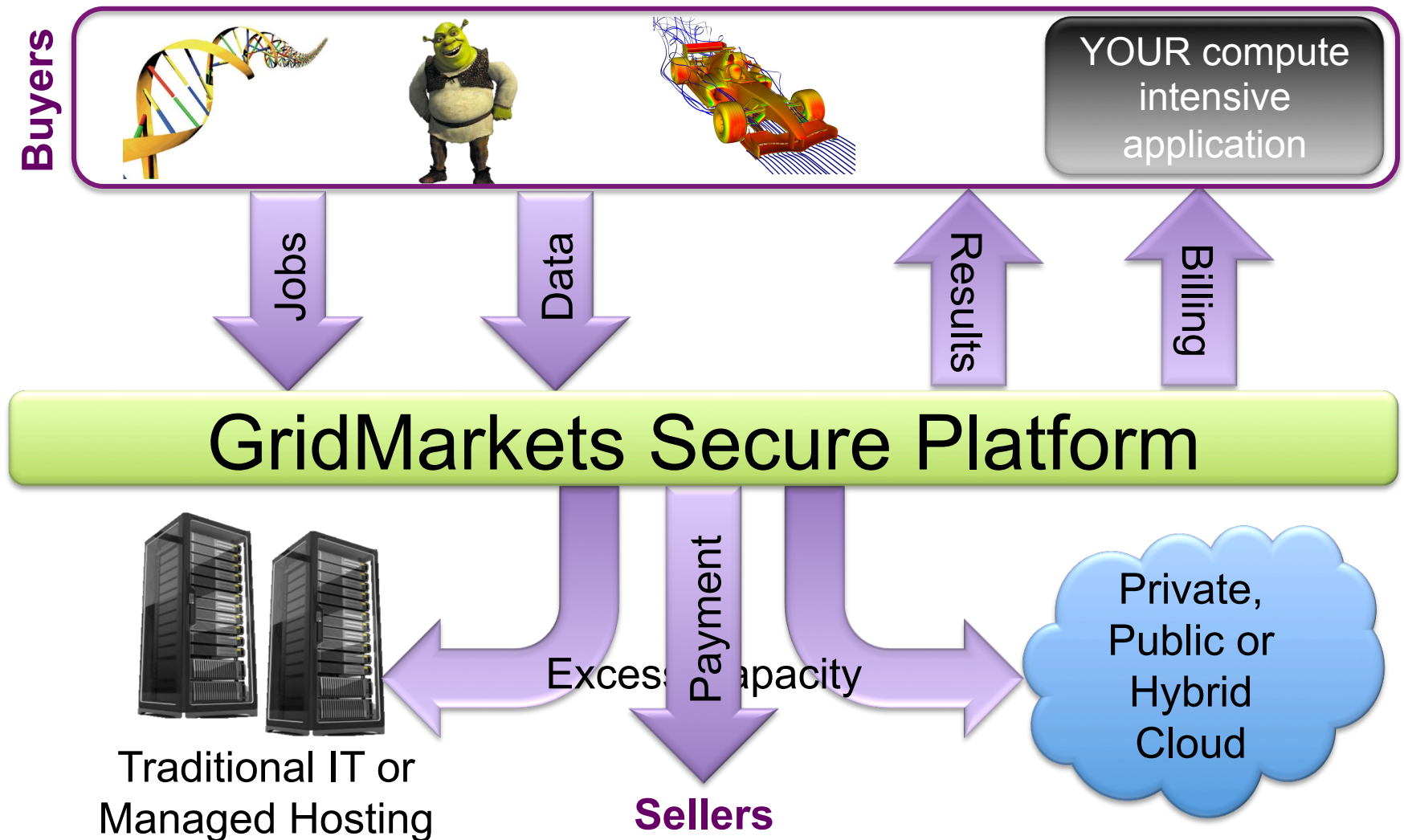**Buyers** obtain capacity in core hours of <u>actual</u> usage

- Fraction of normal costs
- No minimum commitment

"The AirBnB of CPU Capacity"

How it Works

Buyers

YOUR compute intensive application

Jobs

Data

Results

Billing

GridMarkets Secure Platform

Traditional IT or Managed Hosting

Excess capacity

Payment

Sellers

Private, Public or Hybrid Cloud

16

Security

- Buyers need assurance that data and transactions are secure
- Not adversely impact on seller operations or resources

Safeguards

Technical
- No direct connection
- Peer-to-peer model
- Virtual machines
- Excess capacity
- Encryption
- Security hardening

Legal
- IP protection
- Warranties
- Liabilities
- Indemnity from malicious behaviour

Biz/Operational
- Private community
- Transparency
- Counterparty exclusions

Private Community

Transparent   Institutional; not retail

Commercial Model

Current – GridMarkets initially acts as a wholesale reseller

Future – An exchange with futures, options and other derivative contracts

Legal Framework = "Community Rules"

Seller Assurances

- Buyer's computations and GridMarkets' platform will not operationally impact seller's resources
- Indemnity from malicious behaviour by buyers
- No service level obligations
- Buyer processes certified for processing

Buyer Assurances & Requirements

- IP protection of processing units and data
- Indemnity from malicious behaviour by sellers
- Need to cover all licensing issues

Competitors

✖ Volunteer programs (e.g. SETI@Home)

✖ Public Clouds

- Primary vs. Secondary market

- High-performance vs. High-throughput Computing

- They are our clients!

✔ Frontier Grid – Parabon Computation Inc.

- Potential competitor but difficult to adopt and not same biz model

Benefits

Sellers monetise rapidly depreciating unused assets at marginal cost

➡️

Free money!

Buyers save <u>significant</u> money and/or <u>time</u> with no financial outlay or commitment

➡️

Transform business
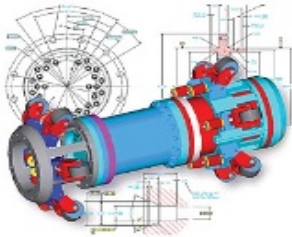
☑ Save budget

☑ Decrease time to market

☑ More design iterations

☑ Larger jobs

☑ More complex models

☑ Increase productivity

Case Studies

Business: Global engineering software

Issue: Engineering work stops as computationally intensive processing occupies workstations.
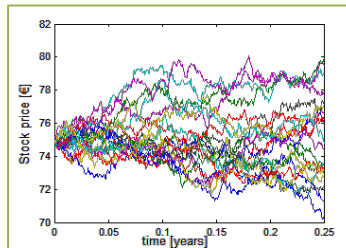
Benefit: Productivity of knowledge workers increased; product modelling enhanced.

Business: Global hedge fund

Issue: Compromises required on financial models given limited computational capacity.

Benefit: Significantly higher granularity of model iterations improved investment insights.
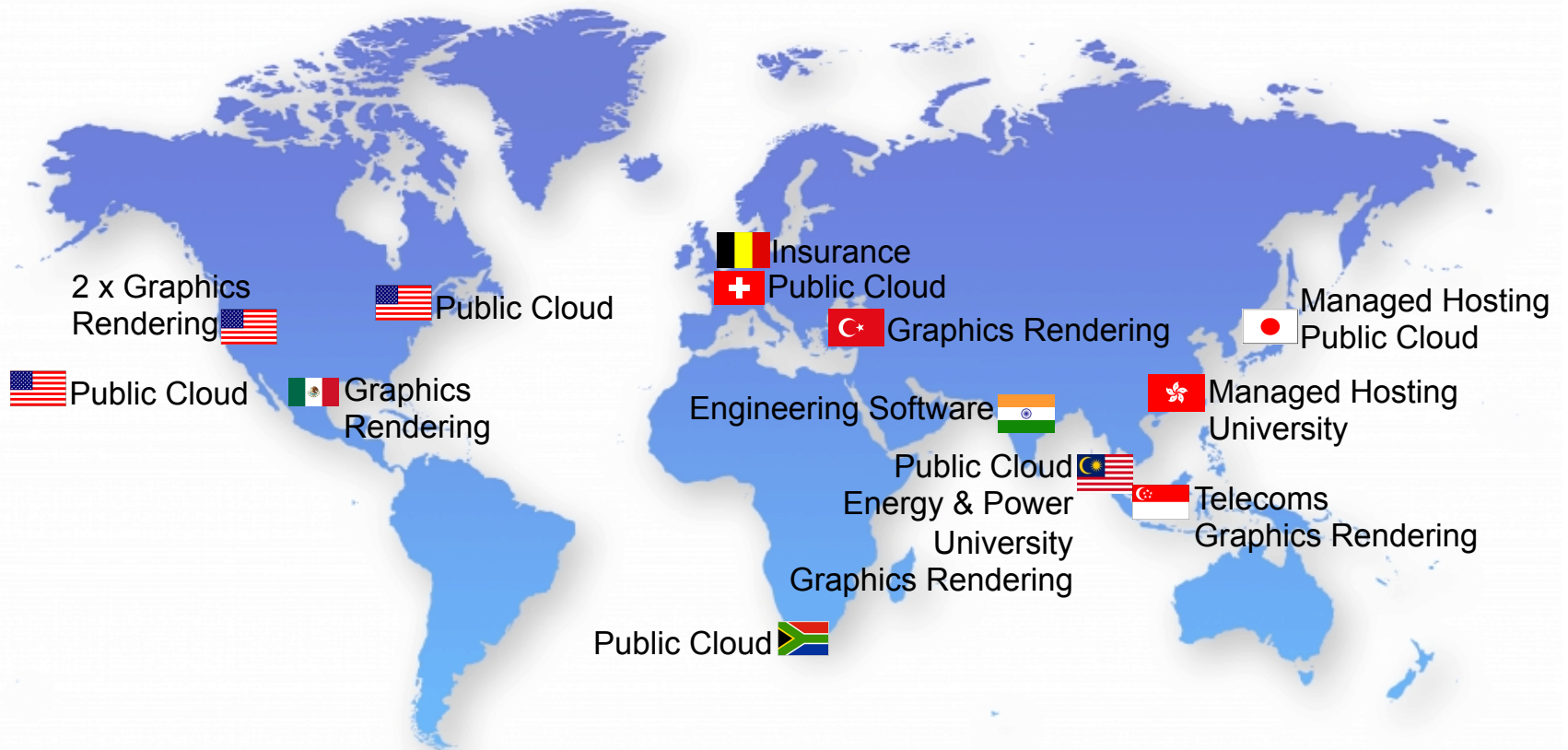

Business: Global video rendering

Issue: Capital rich competitors with ample computational resources grabbing market share.

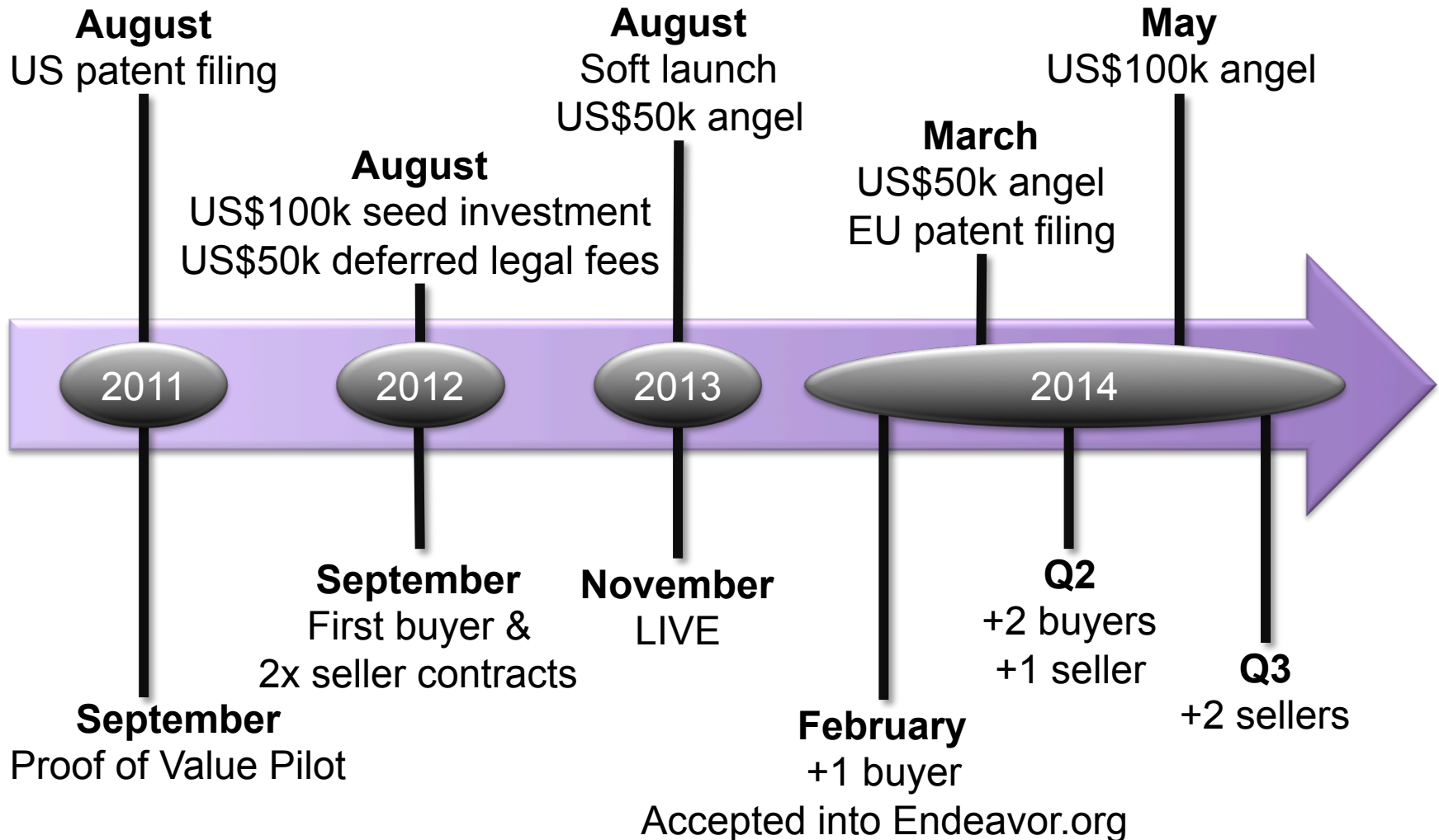**Benefit:** Expanded service offering resulting in new customers and revenues.

Global Business

Accomplishments

August
US patent filing

August
US$100k seed investment
US$50k deferred legal fees

August
Soft launch
US$50k angel

March
US$50k angel
EU patent filing

May
US$100k angel

2011   2012   2013   2014

September
First buyer &
2x seller contracts

November
LIVE

Q2
+2 buyers
+1 seller

Q3
+2 sellers

September
Proof of Value Pilot

February
+1 buyer
Accepted into Endeavor.org

Value and Exits

Value created:

1. Community – market liquidity

2. Platform – outsource/sell/open-source?

Potential exits:

- IPO

- Primary-market provider

- Infrastructure software vendor

- Service provider

- Exchange

Summary

✓ Huge and unbounded opportunity

✓ Disruptive and transformative

✓ Kick-ass team!

GRIDMARKETS
ECONOMICALLY EXPEDITING
COMPUTATIONALLY INTENSIVE PROBLEMS