

State of the Cloud, Rise of the Machine

HPC Keynote Panel

September 20, 2016



+ Panel Introductions

Moderator

- Dave Weber, Lenovo, Director



Panelists

- Terry Roche, TABB Group, Principal, Head of FinTech Research
- Felix Candelario, Solutions Architect, Amazon Web Services
- Sean Coughlin, Regional Sales Director, Cloudfian
- Rima Alameddine, VP East Region Sales, NVIDIA





Capital Markets
Step Change Transformation

September 20, 2016

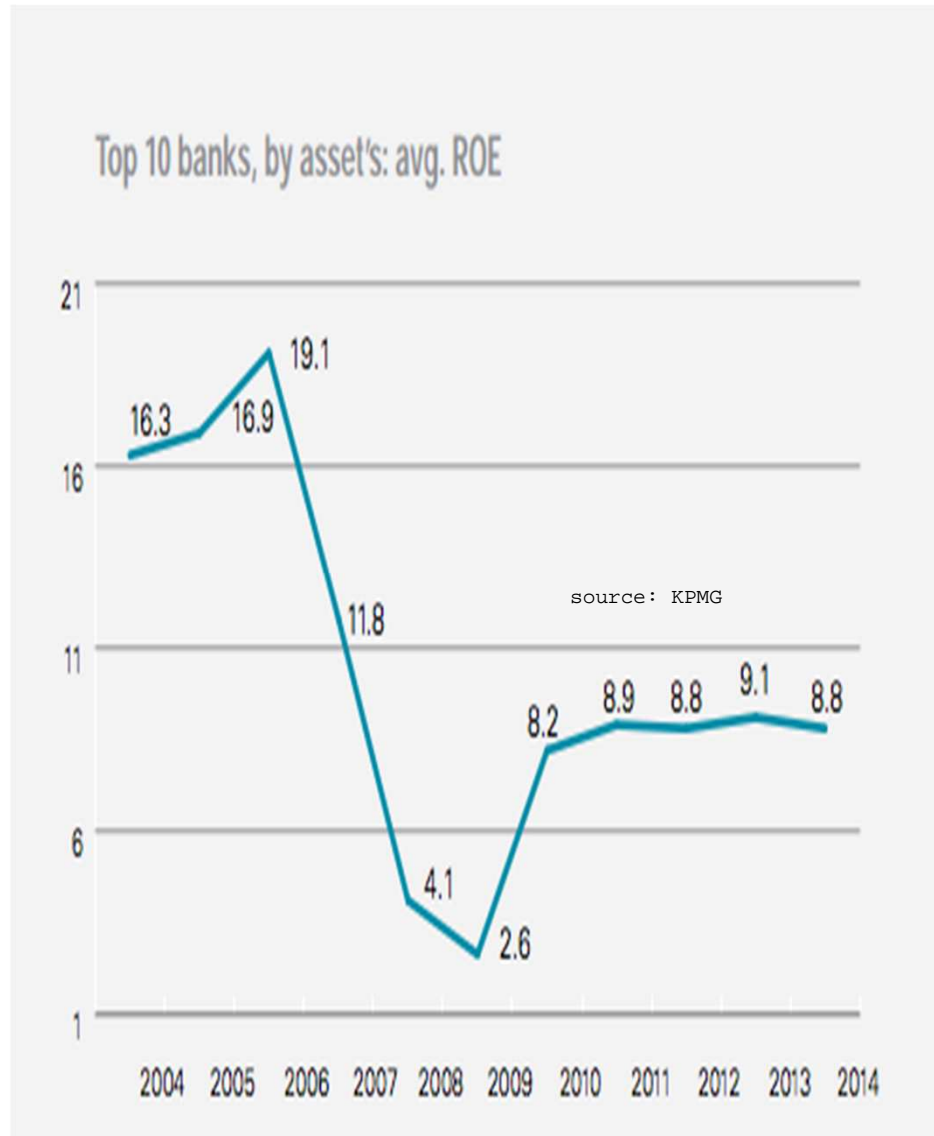
Terry Roche
Principal, Head of FinTech Research
TABB Group



The existing cost model of Capital Markets is Unsustainable

- **Holistic view is needed to unlock value and comply with regulation**
- **Effective aggregation for analytics challenging**
- **Data constantly shifting and growing exponentially year after year**
- **Costs must be reduced**
- **New models to achieve differentiation must be embraced**

Return On Equity



"Reducing costs is a driver but challenge is to identify how real savings area. Bursting is easy to quantify, but long term is trickier." - Director (IT), Top Ten IB

"The industry has a ROE problem. Our ROE is below cost of our capital, we won't revenue grow our way out." - COO, Top Ten IB

"It's a digital business model, we need to enable to firm to have an elastic, agile infrastructure. We do lots of real time solutions that have high mission criticality and uptime needs.... We run the risk as an industry to be locked out of the innovation happening in the public cloud." - MD, Top Ten IB

Step Change Transformation

- **A step change transformation is needed to drive the industry forward**
- **Adoption of Cloud**
- **Third Generation Platform delivered Services**
- **Utilities**
- **Machine Intelligence**
- **Blockchain**

Feedback loop: “Regulation, regulation, regulation” driving technology innovation. Technology innovation driving change in business models

- **Regulatory trends**
 - Regulations increasing capital requirements, ROE down as result
 - Rising importance of analysis (TCA, risk, compliance, predictive alpha)
 - New focus on infrastructure cost reduction
 - Principles based to rules based; more intrusive, ad hoc, real-time
 - Fund management going from pay-for-performance to index-based
- **General trends**
 - Operating silos tearing down
 - Move to opex from capex

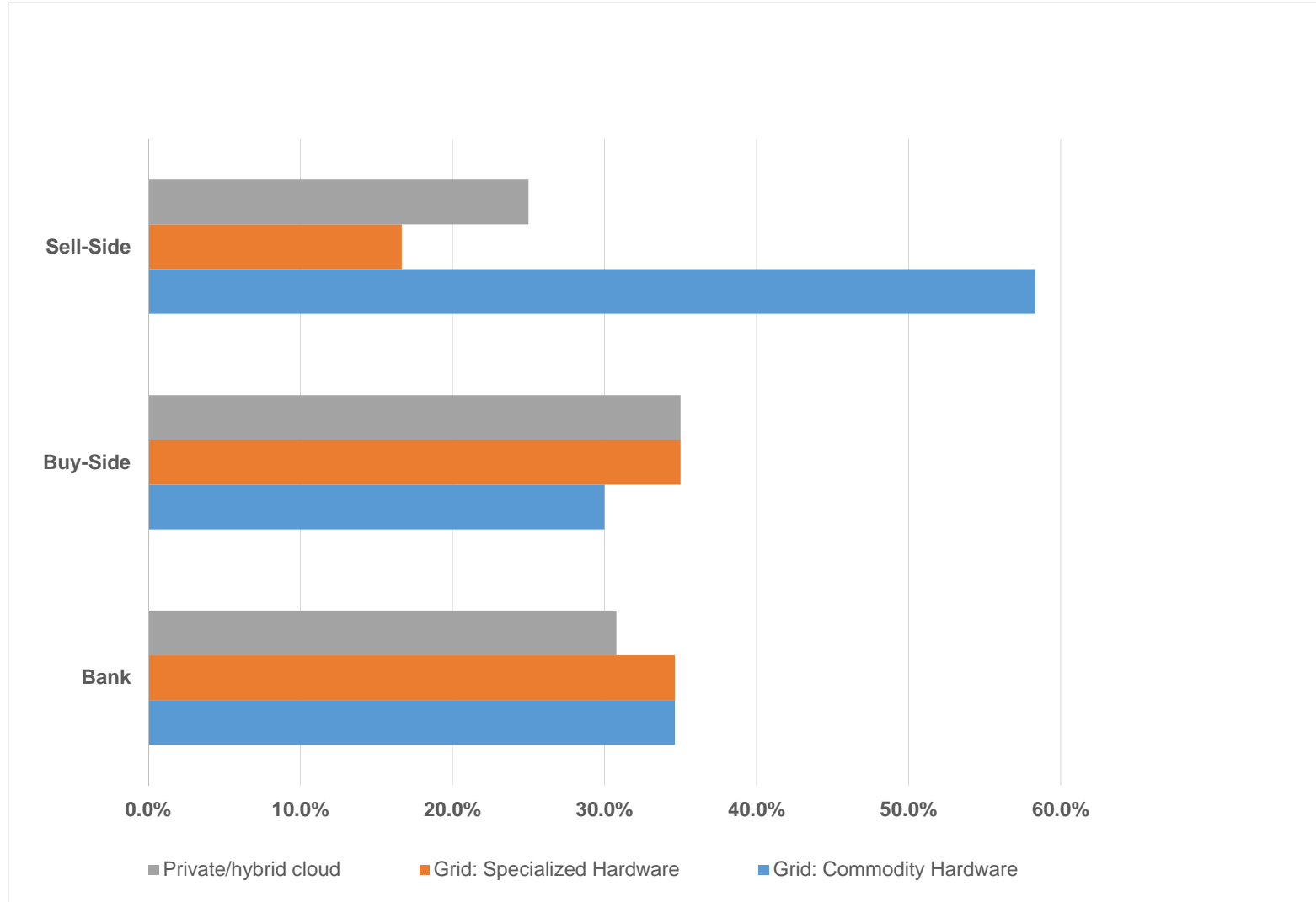
View of cloud

Generally positive view of potential benefits of cloud technology, but wary of public cloud.

- Generally positive view of cloud technology and potential benefits, but still wary of public cloud
- Many using private cloud or participated in public cloud POC/pilot, but 'not ready' for public cloud
- Small number using public cloud
- Some firms using/experimenting with Google open source components
- Sell side public cloud use mainly compute/burst managed by Grid / HPC team
- Buy side public cloud use SaaS/managed/hosted solutions, or research/backtesting; managed by operations staff or developers/quants
- Business side familiar with cloud technology's 'headline benefits' and potential for enabling data analytics & machine learning, not sure how to 'get there'

*"Our technical operations expenses have declined 4% since 2012 due to our private cloud initiative... the cost savings potential is massive." - MD (IT)
Top Ten IB*

Existing Grid vs Cloud Compute Workloads




Adoption of Cloud

- **Decision makers and influencers buy into the benefits of cloud**
- **Capital Markets technology not ready for cloud**
- **Barriers more than technology**
- **Lowering the cost of Operations**
- **Empowering Innovation**

"ROI isn't only driver, our tech could be obsolete or we have a vision to execute" - Board member, exchange


"The financial world is one step behind geeks in CA but we're catching up...the tech piece of buy side firms will be very different this year than last...cloud is happening whether we like it or not" - HD of Global Operational Risk, asset manager

Cloud cost and movement ...



73% OF FIRMS
SPENT MORE MONEY ON
MANAGING THEIR CLOUD
IMPLEMENTATION THAN THEY
PREDICTED

Source: SungardAS/TABB Group



66% OF FIRMS
MOVE AT LEAST 1/3 OF THEIR
CLOUD INFRASTRUCTURE BACK
ONTO THEIR PROPRIETARY
PHYSICAL INFRASTRUCTURE

Source: SungardAS/TABB Group

Conclusion

- **Regulations are driving Capital Markets**
 - **Fear Greed and Regulation has become Regulation and Fear**
- **Data challenges continue to grow**
- **FinTech offerings may be threats as well as solutions**
- **The cost model is unsustainable**
- **Capital Markets needs to embrace fundamental change to manage costs and unlock value and differentiation**

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thanks.

