



ciab
FEBRABAN
25 ANOS



VCE SOLUTIONS FOR THE FINANCIAL SERVICES INDUSTRY

Isaac Rozenfeld

@hypervisaac

Lead Financial Services Industry Architect

16th & 17th June, 2015



AGENDA

WHY VCE FOR FINANCIAL SERVICES

THE VCE DIFFERENCE

INDUSTRY USE-CASES

UNIFIED DATA ANALYTICS FOR BANKING

Q & A



AGENDA

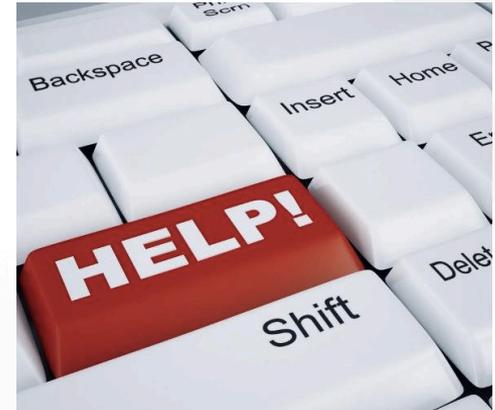
WHY VCE FOR FINANCIAL SERVICES

THE VCE DIFFERENCE

INDUSTRY USE-CASES

UNIFIED DATA ANALYTICS FOR BANKING

Q & A



VCE SUMMARY

A HIGHLY SUCCESSFUL AND INNOVATIVE TECHNOLOGY COMPANY

Formed as a joint venture in 2009 by EMC & Cisco, with investments from VMware & Intel

- Pioneered the Converged Infrastructure market, first as a reference architecture, then as a true converged product

VCE is now part of the EMC Federation with an expanded charter and increased investments

- EMC Federation's Converged Infrastructure systems integrator
- EMC Federation's Enterprise Hybrid Cloud solutions enabler

Cisco remains a fully committed investor with multi-year engineering, resell, and support agreements between the companies

- We represent ~20% of UCS revenue, highest of UCS partners



WHO IS VCE TODAY?

#1

Market Share &
Gartner MQ position

96%

Customer Support
CSAT Score

Fastest
to \$1B

>50% Y/Y Growth
2014 FY

1200+

Customers

2000+

Vblock™ Systems Sold

\$2B+

Annualized Run-Rate



TODAY'S IT

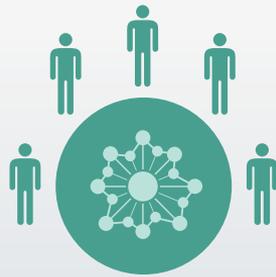
TEAMS IN SILOS



Compute



Storage



Network



Virtualization



Application



IT BUDGET

Maintaining operations cost

New software investments

New hardware investments



EMC²

Pivotal

RSA

vmware



A DIFFERENTIATED APPROACH TO SYSTEMS

TRUE CONVERGED INFRASTRUCTURE



AS ONE PRODUCT



VCE CUSTOMER RESULTS

COMPUTE

STORAGE

NETWORK

VIRTUALIZATION

4.6X MORE APPS
DEPLOYED

FASTER TIME
TO MARKET **4.4X** 

96% REDUCTION IN
DOWNTIME

LESS TIME
KEEPING
LIGHTS ON **41%** 

CONVERGED OPERATIONS

Source: IDC doc#255798, The Business Value of VCE Vblock Systems, May 2015



EMC² Pivotal. RSA vmware



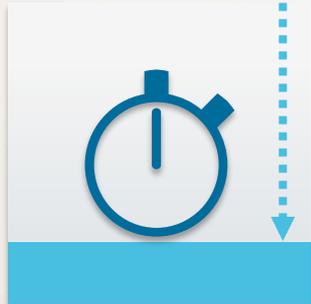
VCE IMPROVES EFFICIENCY



4X

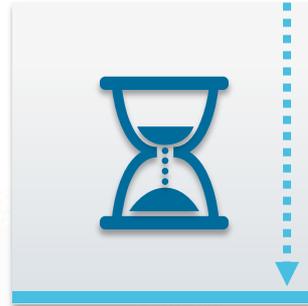
FASTER TIME-TO-DEPLOYMENT

- 160 days down to 40
- 79% less staff effort



5X

FASTER TIME FOR NEW SERVICES



96%

REDUCTION
IN DOWNTIME



50%

REDUCTION OF ANNUAL
DATA CENTER COSTS

RESULTS OF SEPTEMBER 2013 IDC RESEARCH STUDY



HIGHER AVAILABILITY AND FASTER RECOVERY

BETTER SYSTEM UPTIME

Total Downtime/User		How Did Customers Do That?
96% Less	From 8.0 to 0.3 hours per year	<ul style="list-style-type: none">▪ Consolidated, standardized footprint = fewer things to break and keep working▪ Engineered as a unit with over 1,000 other similar units = rigorous, consistent engineering▪ Unrivaled quality; IOS 9001:2008 certified to plan, buy, integrate, and deliver IT infrastructure platforms▪ RCM greatly reduces a common source of operator-driven downtime▪ VCE support – “one number to call” greatly reduces the time to resolution▪ IT time freed up, can focus on quality
Unplanned Downtime Incidents		
90% Fewer	From 50.4 to 5.2 per year	
Time to Resolve		
61% Faster	From 5.4 to 2.1 hours	



GARTNER MAGIC QUADRANT – 2014

VCE POSITIONED AS THE LEADER FOR INTEGRATED SYSTEMS

The integrated system market is growing at 50% or more per year...

Report cites VCE strengths including:

- Proven success across major global enterprises in banking, retail, healthcare and manufacturing
- A single-source cooperative support model
- VCE Vision™ Intelligent Operations management complements Cisco UCS and VMware management

About the Magic Quadrant

Gartner does not endorse any vendor, product or service depicted in its research publications, and does not advise technology users to select only those vendors with the highest ratings. Gartner research publications consist of the opinions of Gartner's research organization and should not be construed as statements of fact. Gartner disclaims all warranties, expressed or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose.



EMC²

Pivotal

RSA

vmware



CONVERGED INFRASTRUCTURE PRODUCTS

ARCHITECTURE TAXONOMY

BLOCKS



RACKS



APPLIANCES



VCE CONVERGED INFRASTRUCTURE PORTFOLIO

VBLOCK

APPLICATIONS

Tier 1 Mission Critical

Mixed- workloads, Scale up

ORACLE

SAP



Exchange

VXRACK

Tier 2 Applications

Multi-tenant SP, Scale out

mongoDB

Pivotal

GEMFIRE



AGENDA

WHY VCE FOR FINANCIAL SERVICES

THE VCE DIFFERENCE

INDUSTRY USE-CASES

UNIFIED DATA ANALYTICS FOR BANKING

Q & A



VCE STRONG ORACLE TRACK RECORD

~40 percent of Vblock™ deployments include Oracle



300 family



500 family



700 family

Proven data center transformation

- Primarily in a mixed-workload environment
- Bare metal and virtualized Oracle
- Highly scalable, increased performance
- Reduction in footprint
- Improved staff productivity
- Reduced risk and downtime



ORACLE AND VCE



Designed with Optimization and Flexibility

Description	B460 M4	B420 M3	B260 M4	B200 M4	B200 M3
Processors (sockets) per blade	4	4	2	2	2
Processors per blade pack	8	8	4	4	4
Blade width	Full	Full	Full	Half	Half
Blade height	Double	Single	Single	Single	Single
Memory (DIMM) slots	96	48	48	24	24
Local disks (bays)	4	4	2	2	2
Hardware adapters (mezzanines)	4	2	2	2	1
On board adapters (mLOM)	2	1	1	1	1

Cisco UCS B460 M4 blade pack CPU and memory size combination

CPU ID	CPU speed	CPU max power	CPU: cores (per blade)	RAM sizes (GB)
E7-4890 v2	2.80 GHz	155 W	4 : 60	256, 512, 768, 1024, 1536, 2048, 3072
E7-4880 v2	2.50 GHz	130 W	4 : 60	256, 512, 768, 1024, 1536, 2048, 3072
E7-4860 v2	2.60 GHz	130 W	4 : 48	256, 512, 768, 1024, 1536, 2048, 3072
E7-8857 v2	3.00 GHz	130 W	4 : 48	256, 512, 768, 1024, 1536, 2048, 3072

Cisco UCS B260 M4 blade packs with Intel Xeon E7-4860v2 CPU

B260 M4 blade packs with Intel Xeon E7-4860v2 (2.60 GHz, 130W, 15-Core)				
Blade pack SKU	CPU: cores per blade	RAM size	RAM config	Mezzanine
BPVE-0182-00-A	2 : 24	128 GB	16 x 8 GB	VIC 1240
BPVE-0191-00-A	2 : 24	128 GB	16 x 8 GB	VIC 1280
BPVE-0183-00-A	2 : 24	256 GB	32 x 8 GB	VIC 1240
BPVE-0192-00-A	2 : 24	256 GB	32 x 8 GB	VIC 1280
BPVE-0185-00-A	2 : 24	256 GB	16 x 16 GB	VIC 1240
BPVE-0194-00-A	2 : 24	256 GB	16 x 16 GB	VIC 1280
BPVE-0200-00-A	2 : 24	384 GB	16 x 8 GB, 16 x 16 GB	VIC 1240
BPVE-0201-00-A	2 : 24	384 GB	16 x 8 GB, 16 x 16 GB	VIC 1280
BPVE-0186-00-A	2 : 24	512 GB	32 x 16 GB	VIC 1240
BPVE-0195-00-A	2 : 24	512 GB	32 x 16 GB	VIC 1280
BPVE-0188-00-A	2 : 24	512 GB	16 x 32 GB	VIC 1240
BPVE-0197-00-A	2 : 24	512 GB	16 x 32 GB	VIC 1280
BPVE-0187-00-A	2 : 24	768 GB	48 x 16 GB	VIC 1240
BPVE-0196-00-A	2 : 24	768 GB	48 x 16 GB	VIC 1280
BPVE-0189-00-A	2 : 24	1024 GB	32 x 32 GB	VIC 1240
BPVE-0198-00-A	2 : 24	1024 GB	32 x 32 GB	VIC 1280
BPVE-0190-00-A	2 : 24	1536 GB	48 x 32 GB	VIC 1240
BPVE-0199-00-A	2 : 24	1536 GB	48 x 32 GB	VIC 1280

PRIVATE CLOUD CASE STUDY

DATACENTER CONSOLIDATION

Situation

- Optimize operations and reduce TCO on highly virtualized environment (85%+)
- Implement IaaS to support country operations and to provide burst capacity for global operations
- Migrate Oracle RAC, Windows app servers, VDI, Citrix XenApp environment, legacy mainframe apps

Solution

- Two Vblock System 300 – solution won bank's innovation award for streamlining operations and reducing costs

Business Benefits

- **Reduce per-VM cost by 43%** - OPEX savings compared to the next best alternative do-it-yourself V+C+E were **~20%**
- Moved resources from maintaining the equipment running to supporting business demands
- Moving to provide development and test teams self-service portals for rapid deployment of new applications globally



"We don't get kudos for keeping things running. Our job is delivering benefits to the business. That makes the difference to the team. Without the flexibility we have with the Vblock, we would not have been able to support the business."

— Country CTO

<http://www.computerworlduk.com/news/it-vendors/socgen-supports-devops-transformation-with-oracle-dbaas-3574481/>

<http://www.vce.com/asset/documents/sgbt-casestudy.pdf>



EMC²

Pivotal

RSA

vmware



EDISCOVERY AND REGULATORY ANALYTICS

DATACENTER CONSOLIDATION

Situation

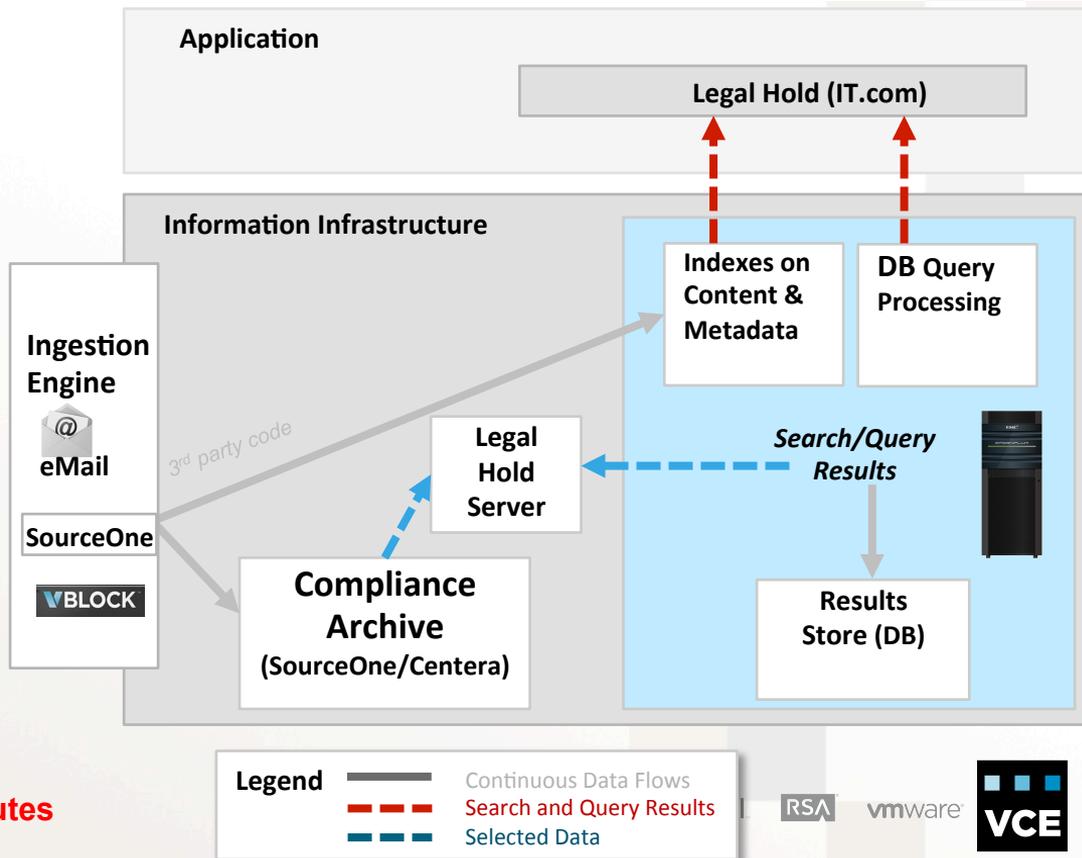
- \$94 Billion revenues in 2013 with 250,000+ employees, 200M accounts in over 140 countries
- Facing significant cost & risk in data retrieval and management
- Desire to grow globally whilst reducing risk
- Experiencing complexity in silos of global infrastructure
- 3rd party challenges; unreliable bespoke code; contrary partners
- Difficulty managing eDA as a single solution rather than a collection of parts

Solution

- EMC Federation solution, SourceOne, Vblock

Business Benefits

- Achieved **100% Vblock uptime**, faster service exceeding SLAs
- Enhanced data retrieval from **7+ weeks to minutes**



IT TRANSFORMATION JOURNEY

INCREASED AVAILABILITY AND RESPONSE TIME

Situation

- Financial research and credit rating institution with 8500 employees in over 30 countries
- Outsourced datacenter provider was not meeting needs, experiencing extended downtime and inadequate response times for mission-critical applications
- Needed a more reliable solution for mission-critical environments whilst reducing management costs

Solution

- 2 Vblock System 720s were deployed over a course of 4 months
- Additional Vblock expansion investigation underway

Business Benefits

- Drastically improved reliability
- Significantly reduced deployment times
- **60% OPEX** savings
- Became strategic standard

“With our 1st Vblock it took us 14 days to start deploying VMs; 2nd Vblock allowed us to half that to 7 days”

— Rajiv Doshi, Senior Vice President



PRIVATE CLOUD CASE STUDY

NEW LEVELS OF IT AGILITY



Situation

- IT organization recognized that a private cloud strategy would yield both the agility needed to support a rapidly changing business environment and the efficiency needed to improve profitability and deliver the best possible customer service
- Needed to re-define organizational structure and processes, to better leverage available technology

Solution

- Two Vblock Systems integrated with BMC software for unified IT service management
- EMC VPLEX distributed data federation
- Define a private cloud for all critical production systems on standardized infrastructure
- Thoroughly designed and co-engineered across geographies

Business Benefits

- **25% IT infrastructure savings** due to lowered cost of doing business
- Increased agility with private cloud offerings – services are stood up **within 15 minutes**
- Optimized and modernized internal business processes
- Became corporate standard

“We decided to build a highly-available and secure private cloud and we wanted a platform that would work from day one.”

— Alain Deschenes, Group CIO and Industrialization Officer

<http://www.vce.com/asset/documents/credit-agricole-casestudy.pdf>

© 2015 VCE Company, LLC. All rights reserved.



EMC²

Pivotal

RSA

vmware



FLEXIBLE DEVELOPMENT PLATFORM

Global Payments
Company

BUSINESS CONTINUITY AND COST REDUCTION

Situation

- Needed to introduce new, proprietary services such as SaaS e-Wallet application
- Desired to ease customers' experience in purchasing products and services
- Wanted to build new applications to leverage online marketing and mobile devices
- Mission-critical financial applications requiring reliable, secure platforms
- Needed flexibility for separate development from production systems

Solution

- Unblock systems in place and functioning **within 45 days** to meet rapid deployment requirements

Business Benefits

- Improved security with hardware isolation
- Simplified operations
- Reduced application development environment standup time by over **90%**
- One-vendor support
- *"Integrated system has its operational advantages. VCE also has the first mover advantage"*
-- Group VP



DESKTOP-AS-A-SERVICE VDI

Investment
Services Firm

INCREASED AGILITY FOR 5,000 USERS AND CALL CENTERS

Situation

- Second oldest financial institution in the United States
- Custodian, trading, investment management services
- \$10 billion in 2013 revenues, with 30,000 employees
- Faced with 6- to 9-months delays in deploying new infrastructure
- Strategic direction to move to ITaaS to simplify and automate complexity of provisioning new IT services
- Virtual Desktop Infrastructure, deploying 5,000-user Citrix and RHEL

Solution

- Four Vblock Specialized Systems for Extreme Applications supporting VDI Desktop-as-a-Service
- Expecting to be able to sustain 30,000 users globally
- Five Vblock System 340's for Call Manager application
- EMC Data Domain, VMware, VCE Cloud Managed Services

Business Benefits

- Mission-critical grade infrastructure reduced overall project timelines and risk
- Simplified operations and lifecycle management, saving **millions of dollars in OPEX**
- Gained ability to deliver ITaaS, increasing organizational agility and lowering TCO



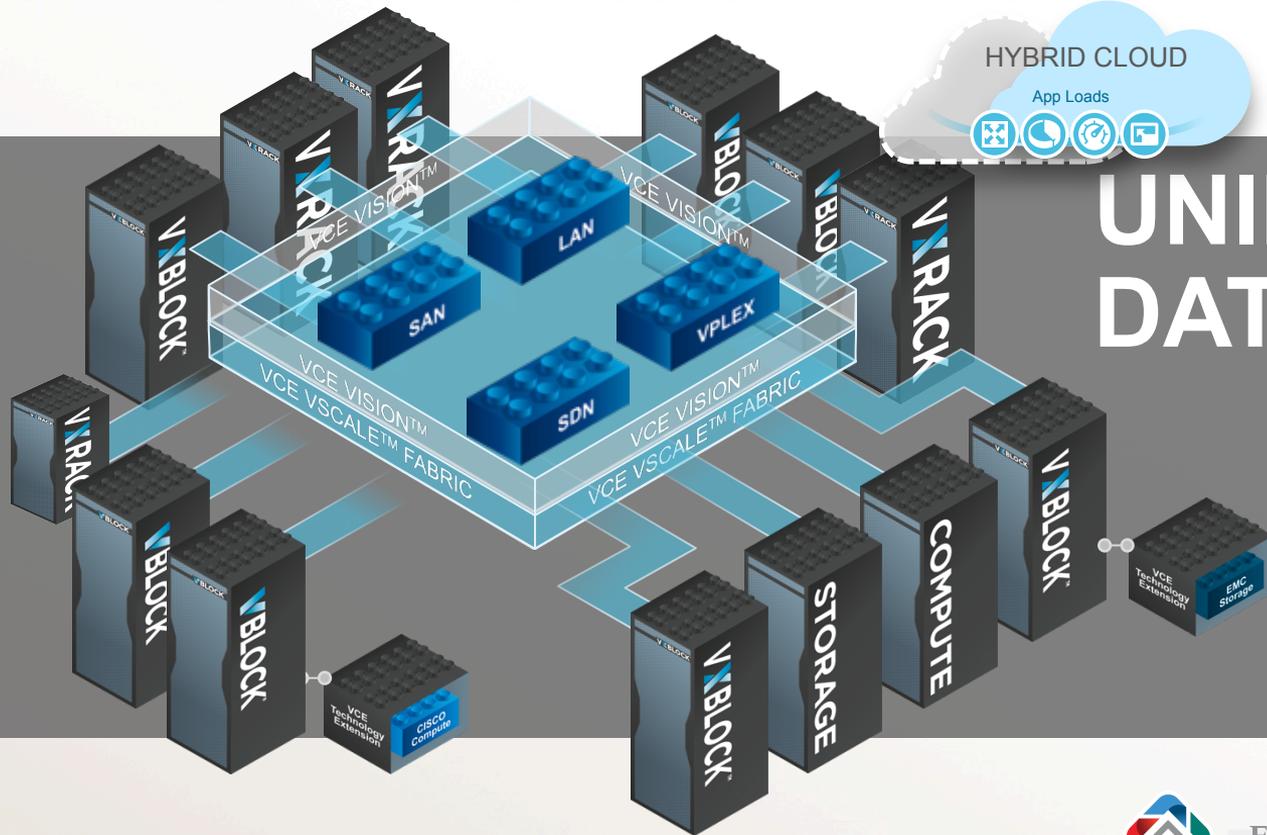
VCE VSCALE™ ARCHITECTURE ENABLES AN INDUSTRY SHIFT TO CONVERGED INFRASTRUCTURE PRODUCTS

HYBRID CLOUD

App Loads



UNIFIED DATACENTER



- Unified pool of resources
- Massive scale-up and scale-out
- Converged management and operations at scale



VCE VSCALE™ ARCHITECTURE ENABLES AN INDUSTRY SHIFT TO CONVERGED INFRASTRUCTURE PRODUCTS

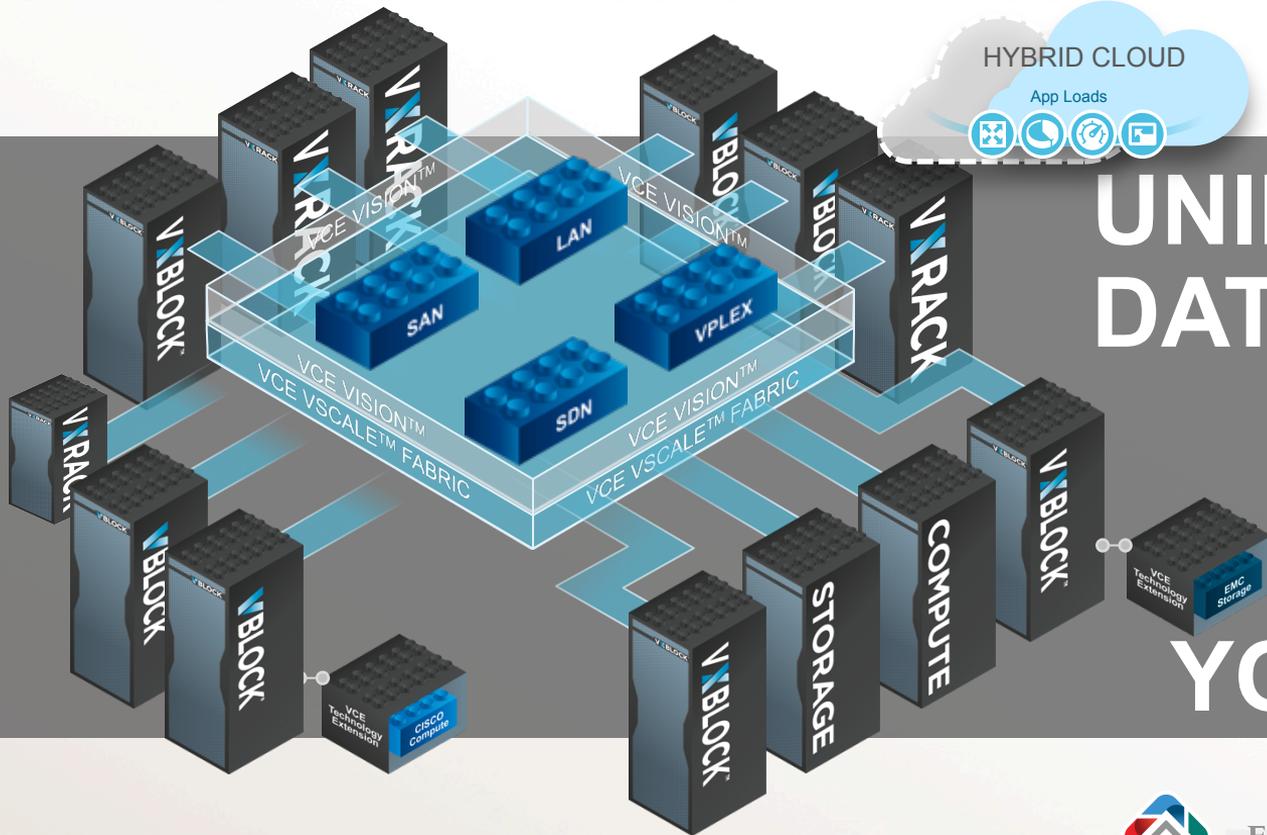
HYBRID CLOUD

App Loads



UNIFIED DATA...

AT THE HEART OF YOUR FIRM



AGENDA

WHY VCE FOR FINANCIAL SERVICES

THE VCE DIFFERENCE

INDUSTRY USE-CASES

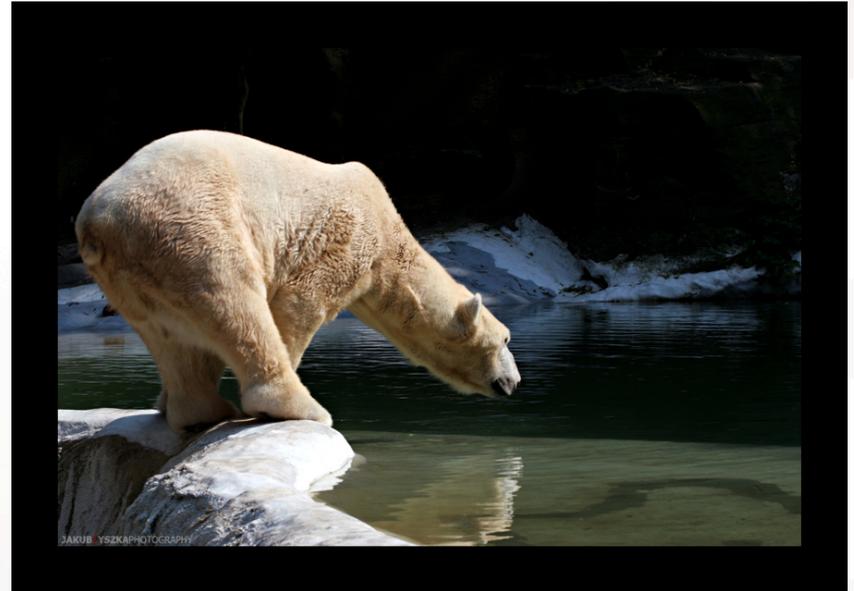
UNIFIED DATA ANALYTICS FOR BANKING

Q & A



DO OPPORTUNITIES WAIT ?

- Do you have requirements for analytics to deliver results quickly?
- Do you need to ingest large amounts of *disparate* data?
- Do you need to be able to run queries in *real-time*?
- Do you have inefficient data silos that impede timely business insights?



WHAT WE HEAR ACROSS THE INDUSTRY

BECAUSE OF ...

Ingestion and Loading Speed

- Clients struggle ingesting and archiving multi-sourced massive quantities of Big Data in a timely manner
- Lack of integrated tools for FLAC (Fraud Detection, Litigation eDiscovery, Audit and Compliance)
 - *Data ingestion speed can't keep up with Big Data growth*

Reporting Velocity

- Their queries and reports can not be completed within expected time windows
 - *When reports and queries take too long, business is impacted adversely*
 - *Queries cause unacceptable slowdowns in business workflows*
 - *Current IT staff are under-resourced to support growing data volumes and reporting demands*

Regulatory Pressures

- Clients can not keep up with meeting intelligence, business and regulatory pressures
 - *Ability to detect and prevent cyber attacks is hindered*
 - *Traditional INFOSEC tools lack sophisticated, co-ordinated query and ingest capabilities*

KEY THEMES: US FINANCIAL SERVICES CONFERENCE
DEC 2014

TRENDS IN FINANCIAL SERVICES

1. IMPROVING LOAN GROWTH
2. INCREASED REGULATION
3. RISE OF MOBILE TECHNOLOGY

The Cost of New Banking Regulation: \$70.2 Billion

ARTICLE COMMENTS (1)

BANK OF AMERICA CITIGROUP GOLDMAN SACHS J.P. MORGAN MORGAN STANLEY



By SAABIRA CHAUDHURI

New regulation stemming from the financial crisis has cost the six largest U.S. banks \$70.2 billion as of the end of last year, according to a new study.

Between the end of last year and the end of 2007, regulatory costs rose by more than 100%—or \$35.5 billion— for Bank of America Corp. [\[BAC +0.36%\]](#), Citigroup Inc. [\[C +0.06%\]](#), Goldman Sachs Group Inc., J.P. Morgan Chase [\[JPM +0.53%\]](#) & Co., Morgan Stanley [\[MS +1.28%\]](#) and Wells Fargo [\[WFC +0.38%\]](#) & Co., according to data from policy-analysis firm Federal Financial Analytics Inc.



EMC²

Pivotal

RSA

vmware



“WHY” IS BIG DATA CRITICAL IN #FINTECH

WHAT KIND OF ANALYSIS CAN BE DONE THAT COULDN'T BE DONE BEFORE?

Security

- Ingest and analyze email, social, documents, database transactions
- Accelerate and simplify eDiscovery

Sentiment Analytics

- Track stock price abnormalities
- Track call center phone records to drive efficiency

Customer Service

- Improve KYC (Know Your Customer)
- Track inbound calls; redirect to best reps
- Correlate client transactions via omnichannel

Brand Image

- Real-time ingest and reporting of social media
- Prevent social media proliferation / prevent negatives
- Identify successes / engage with positives

Reduce Churn

- Correlate internal/external data to identify at-risk clients
- Leverage Customer Lifetime Value
- Increase Agility: Optimized

Cost Efficiency

- Consolidate data and analytics
- Reduce silos of data and intellectual policy
- Reduce risk and improve compliance, avoid costly fines



“WHAT” WILL IT PROVIDE

WHAT KIND OF ANALYSIS CAN BE DONE THAT COULDN'T BE DONE BEFORE?

Data Variety

- Social sites & opinions, images, documents, blogs, SMSs, media data, meta-data, structured & unstructured data types
- Device-to-device transactions generate data

Data Volume

- Trading transactions
- Personal/BYOD/social chatter & sentiment
- Internet of Things (#IoT), Point of sale systems, smart cards, SCADA systems, insurance/speed detection

Data Velocity

- Consumers' use of credit cards and payments
- Anti Money Laundering, Fraud detection
- Trading/counter-party risk
- Exposure to market conditions



Data Value

- Portfolio make-up, investment classes analytics
- Regulatory compliance and fine avoidance
- Omni-channel cross-sell and up-sell opportunities



UNIFIED DATA ANALYTICS SOLUTION

THE IPOD OF BIG DATA ANALYTICS

Big Data Analytics project are too complex, expensive, time consuming and IT-centric
We make big data analytics easy for business

Select Your Data



Run Analytics
Locally or in the Cloud using SQL or R



Appliance Or Cloud (XaaS)

The first data appliance engineered *specifically* for Unified Big Data



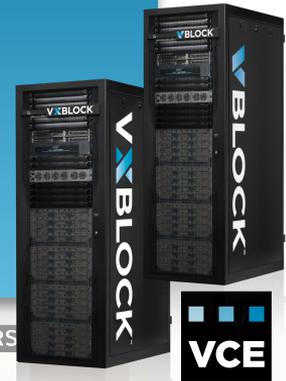
A MISSION-CRITICAL, PROVEN PLATFORM

ENABLING THE PROMISE OF BIG DATA IN FINANCIAL SERVICES



FROM THE GROUND-UP DESIGN CRITERIA

- ✓ Any Data
- ✓ Any Source
- ✓ Real Time Ingestion, Indexing and Loading
- ✓ Single Data Store
- ✓ Intrinsic SQL and R – Not Bolt On
- ✓ Use current tools – query, analytic, visualization
- ✓ Scalable – Storage and CPU Independently
- ✓ Secure – No Open Source, ACID Compliance, Encryption
- ✓ Multi User
- ✓ Federated
- ✓ Low TCO
- ✓ No New Languages
- ✓ No New Skills



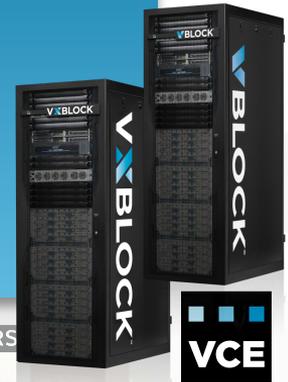
A MISSION-CRITICAL, PROVEN PLATFORM

ENABLING THE PROMISE OF BIG DATA IN FINANCIAL SERVICES



HOW IT BENEFITS YOU

- ✓ Gather information from multiple, disparate sources
- ✓ Analyze for patterns to determine suspicious activity
- ✓ Maintain statistics on flow of funds
- ✓ Delivered as a single unit (platform) allowing institutions, governments and regulators to solve Big Data problems quickly and at massive scale
- ✓ Enables organizations to create an agile framework for rapid Big Data projects

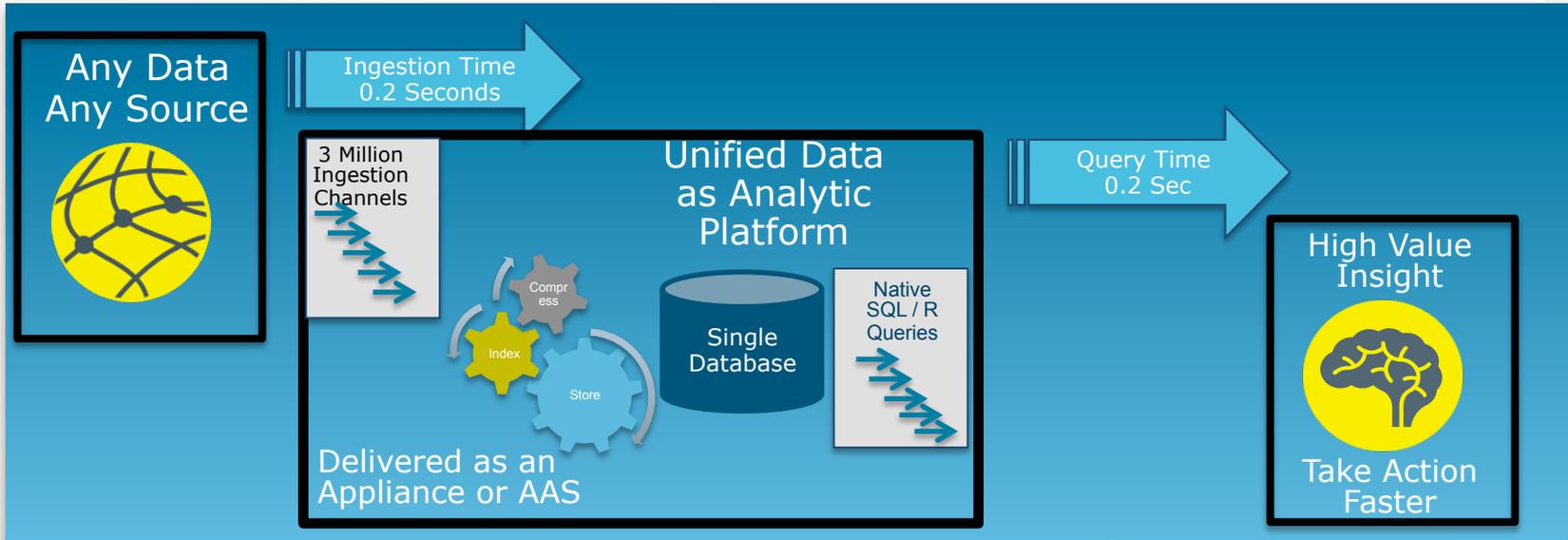


A MISSION-CRITICAL, PROVEN PLATFORM

ENABLING THE PROMISE OF BIG DATA IN FINANCIAL SERVICES

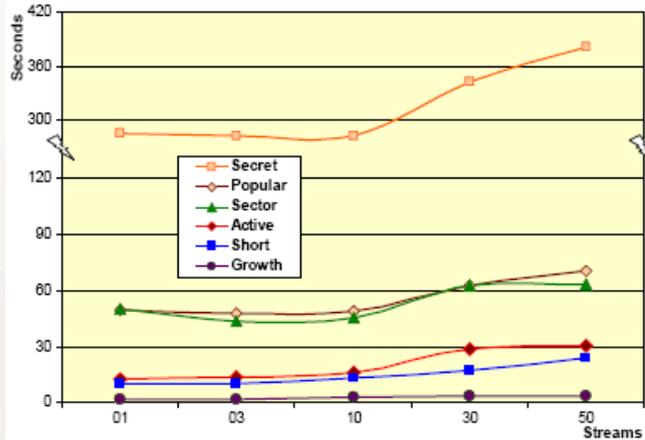


BETTER ANALYTICS RESULTS *FASTER*



DETECTING FRAUD IN REAL-TIME

ENABLE POLICY COMPLIANCE AND PREVENT COMPLEX EVENTS



By cross-correlating trades and “rumors”, this mixed Big Data and SQL query could have helped detect the rouge trader behind the \$8B Société Générale event

The “Popular” Query

Determine the STOCKS that are most discussed in eMail correspondence on a particular day.

```

SELECT
    COUNT (* ) ,
    BM.MESSAGE_TIME,
    SQ.TRADING_SYMBOL,
    SUM (SQ.BID_SIZE) AS TRADESIZE,
    DENSE_RANK ( ) OVER
        (ORDER BY SUM (SQ.BID_SIZE) DESC) AS RANKING
FROM
    STOCK_QUOTE_VIEW SQ,
    BMM_MESSAGEHEADER BM
WHERE
    SQ.QUOTE_DATE = '2007-07-04' AND
    BM.SUBJECT = SQ.TRADING_SYMBOL
GROUP BY
    BM.MESSAGE_TIME,
    SQ.TRADING_SYMBOL
ORDER BY
    SUM (SQ.BID_SIZE) DESC;
  
```

- Access and Analysis: SQL, “R”, MDX, UDF (C++, Java), NoSQL
- Enterprise Analytic Tools: Business Objects, Cognos, Tableau, others
- Existing in-house applications

INTELLIGENCE CASE STUDY

UP AND RUNNING WITHIN A MONTH

Situation

An EU Law Enforcement and Security Agency was challenged with preventing a critical level of cyber-attacks and Internet fraud and threats. Were challenged with having sophisticated ingest, query and analysis capabilities and required visibility to detect and protect against Cyber attacks. Needed a solution that had the ability to gather massive amounts of data from disparate sources to analyze, visualize and draw insights in real-time so that AML and counter-terrorist financing deficiencies

Solution

The Big Data solution had to prove that it could handle current and new data types, data sources and types of analysis using all standard databases and require the use of SQL in accordance with ACID rules. It had to integrate with the Federal Bank, Central Health Authority and various Police agencies for cross analytics on all types of data from multiple sources within and outside of each organization.

Business Benefits

- Fully installed and configured in **less than 4 weeks**
- Illustrated much greater compression rates which were critical to the entire solution
- Gained ability to aggregate and cross correlate masses of critical data from disparate sources in real-time, including documents, email, audio and video files.
- Gained ability to perform behavioral segmentation to isolate risks and threats, identify outliers and understand behavior within and amongst groups. Enabled targeted identification campaigns for specific suspect segments without profiling



COMPLIANCE CASE STUDY

UNLOCKS AGILITY AND DATA INTELLIGENCE, COORDINATION

Situation

The Tax Office of a European country, responsible for collecting tax revenue from over 10 Million citizens possessed a large amount of old data, spanning 30 years, across multiple incompatible silos. It wanted to consolidate all the data into a central database. It also wanted to store all communications with clients, citizens, data and activities into a repository linked to the tax database. None of the existing systems could enable that, prompting intensive manual intervention, with reduced efficiency and being error-prone.

Solution

The Big Data solution addressed all requirements in 3 steps. Archived 100% of Tax Office communications and records at high velocity, providing search, compliance and case management. Created a unified view of all tax and communication data by unifying the solution with the tax database.

Business Benefits

- Immediately processed last 12 months of emails, allowing the Tax Office to process the current tax year
- Able to future-proof the repository for volume and data types with a 360 degree view of corporate and individual tax payers.
- Simplified access to critical information and analysis with a single query, while reducing the risk of human mistakes.



REAL-TIME BIG DATA PERFORMANCE

Number of Rows of Sensor Data	17 Trillion
Average Number of Queries per Day	12 Million
Average Query Response Time	.06 Second

Table 1: Concurrent data ingest and queries of the same table

Text Search of Files of Mixed Data (SMS, Files, Email, etc.)	1 Billion
Average Number of Queries per Day	21 Million
Average Query Response Time	.1 Second

Table 2: Linking enterprise data with sensor data

Cross Query of all Files of Mixed Data (Sensor, Enterprise, SMS/TWT/Email, etc.)	Sensor – 1 Trillion Enterprise – 10 Billion Rows Files – 1 Billion SMS/TWT/Email – 1 Billion
Average Number of Queries per Day	8 Million
Average Query Response Time	1.3 Seconds

Table 3: Linking all Big Data with sensor data



- Bank Accounts
- Transactions
- Loans
- Stock Trades



- Banks
- Bank Accounts
- Transactions
- Loans
- Stock Trades
- Email
- Texts
- Government Records
- Audio (CDRs)
- Video
- Mail
- Companies
- Social Media
- Law Enforcement
- Persons of Interest

IMAGINE THE BIG DATA POSSIBILITIES

WHAT KIND OF ANALYSIS CAN BE DONE THAT COULDN'T BE DONE BEFORE?

Size

- Scales from < 100 TB to 30,000+ TB (**30+ PB**)

Speed

- Loads 136 TB per hour
- That's 3.3 PB per day
- That's 23 PB per week
- **10x – 100x faster** than traditional Big Data approaches

Time to Market

- Deployed within 4-8 weeks after PO
- Arrives configured and tuned

No new languages

- Uses Standard SQL, R, MDX and UDF
- No need for data specialists

Mission-Critical Reliability

- Can provide **99.999% uptime**
- Leveraging EMC replication/snap/clone/multi-site innovations

Scalability

- Up to 12,000 compute nodes in a cluster
- Nodes are up to 8-sockets (120 cores, 12 TB RAM)
- Can add compute and storage without impact



AGENDA

WHY VCE FOR FINANCIAL SERVICES

THE VCE DIFFERENCE

INDUSTRY USE-CASES

UNIFIED DATA ANALYTICS FOR BANKING

Q & A



PLEASE VISIT US AT THE BOOTH

Isaac.Rozenfeld@vce.com

Fabio.Gordon@vce.com



EMC² Pivotal.  