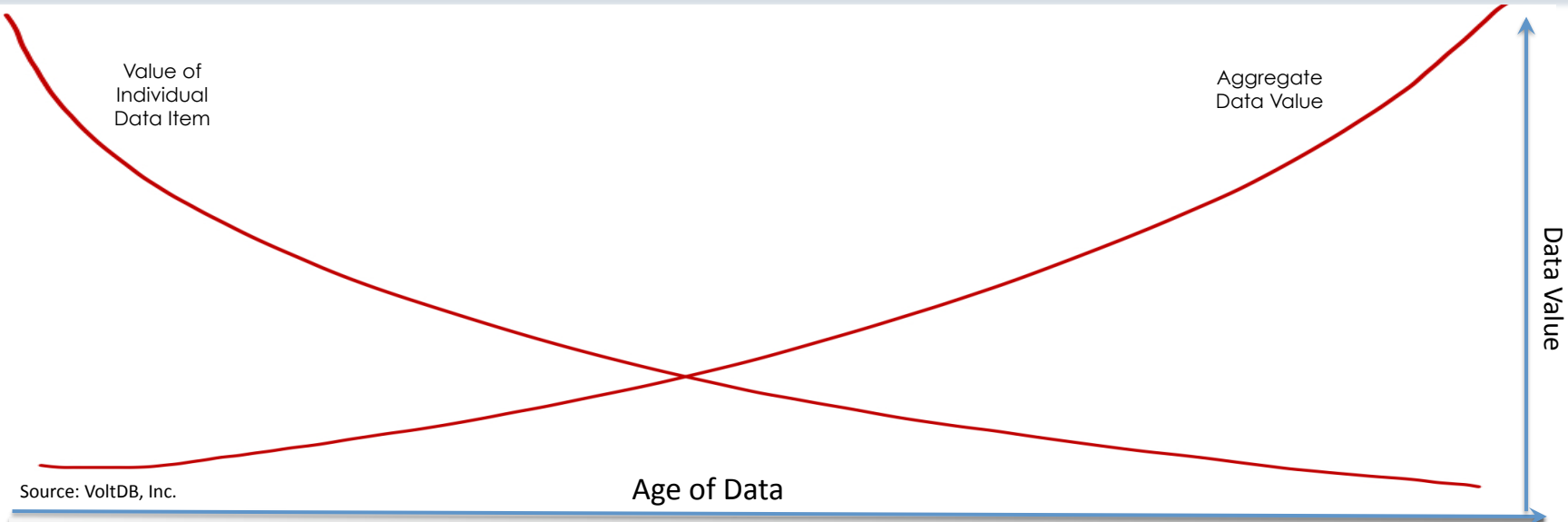
VoltDB The NewSQL database for high velocity applications

NYC Big Data Meetup

Bloomberg

5/21/2012

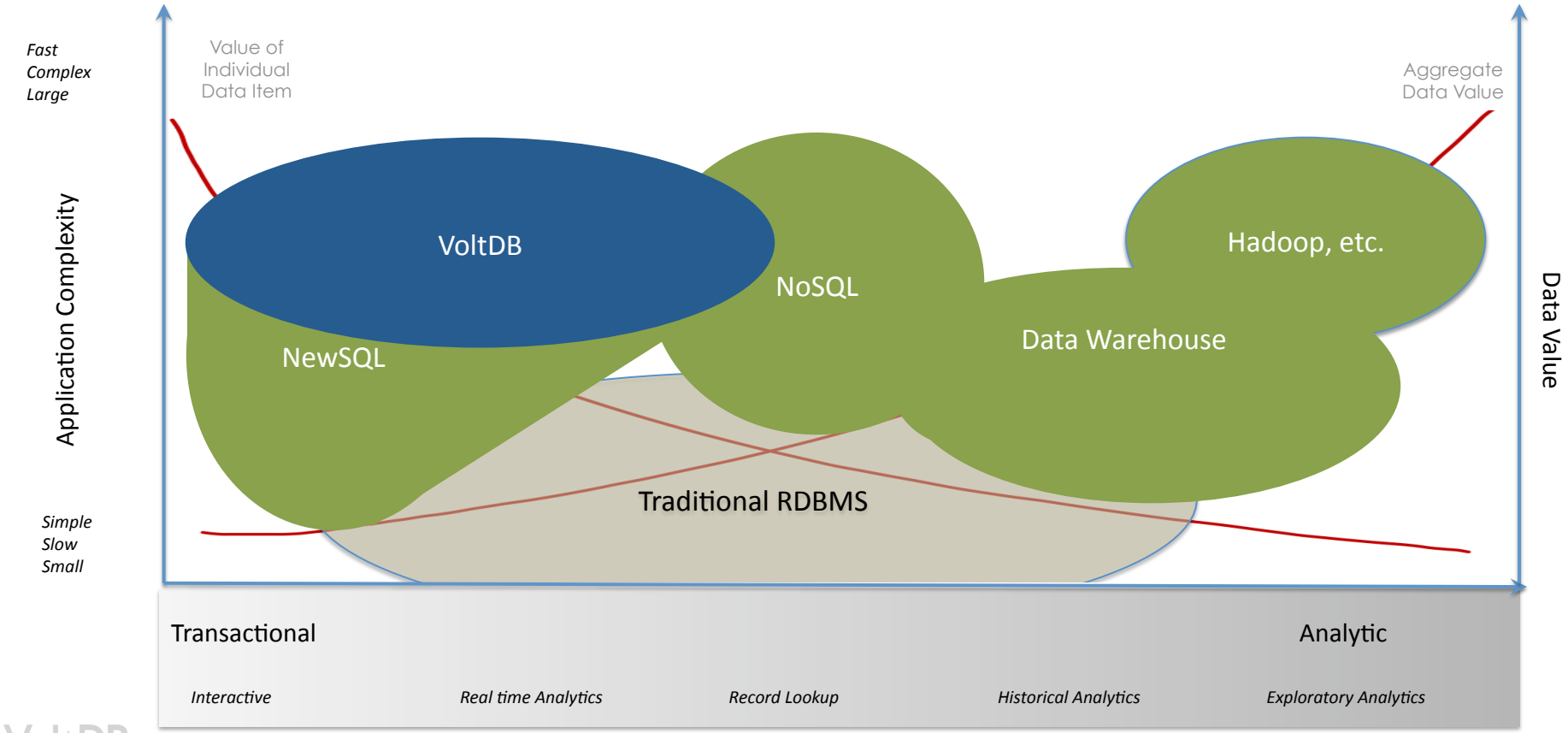
Data Value Chain



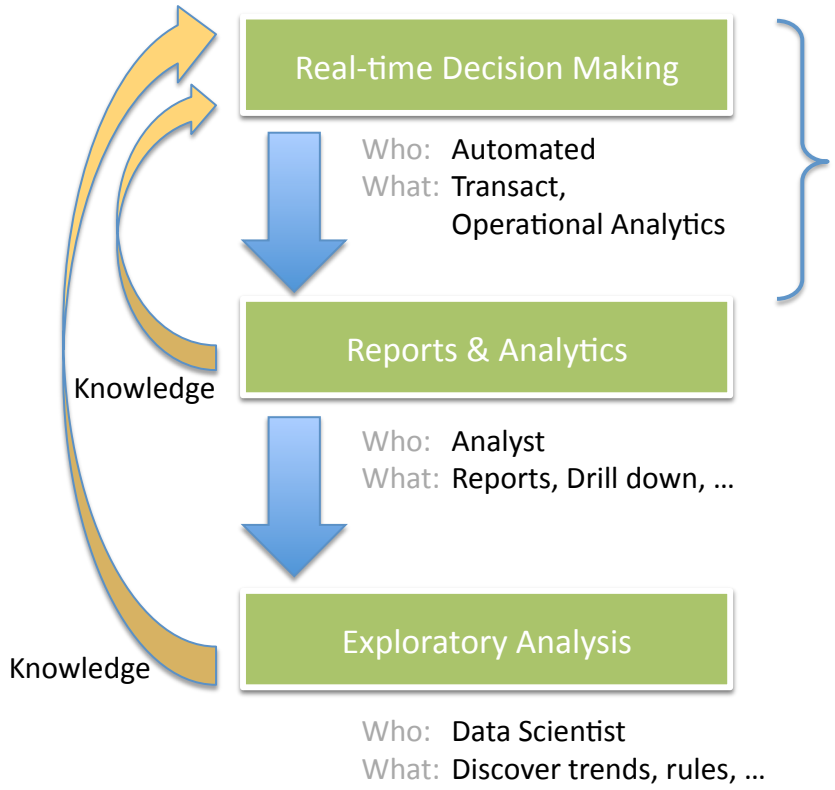
Interactive	Real time Analytics	Record Lookup	Historical Analytics	Exploratory Analytics
Milliseconds	*Hundredths of seconds*	*Second(s)*	*Minutes*	*Hours*
. Place trade . Serve ad . Enrich stream . Examine packet . Approve trans.	. Calculate risk . Leaderboard . Aggregate . Count	. Retrieve click stream . Show orders	. Backtest algo . BI . Daily reports	. Algo discovery . Log analysis . Fraud pattern match

VoltDB

Market Landscape



The Closed-Loop-Big-Data-Dream

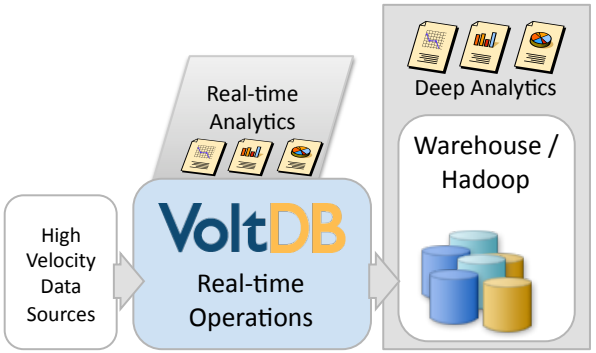


- Make the best decision every time there is an interaction
- Real-time decisions are informed by operational analytics & past knowledge
- Sometimes called OLTP

"it is not enough to capture massive amounts of data; organizations must also sift through the data, extract information and transform it into *actionable knowledge*."

Real-time decision making Use Cases

- High throughput, relentless data feeds
- Fast operations on high value data
- Real-time, operational analytics present immediate visibility



	Data Feed	Real-time Operations	Real-time Analytics
Network Traffic Monitoring	Network packets	Examine packet by source / destination	Identify bandwidth outliers
Financial Trade Support	Market orders	Ingest trade data	Recall post trade order groupings
Sensor tracking & analytics	Sensor position feed	Identification and cleansing of tag info	Notification and groupings
Mobile Gaming	Online game	Game state updates and usage patterns	Leaderboard lookups
Digital Ad Tech	Ad bid / click stream	Bid, optimize content	Report ad performance

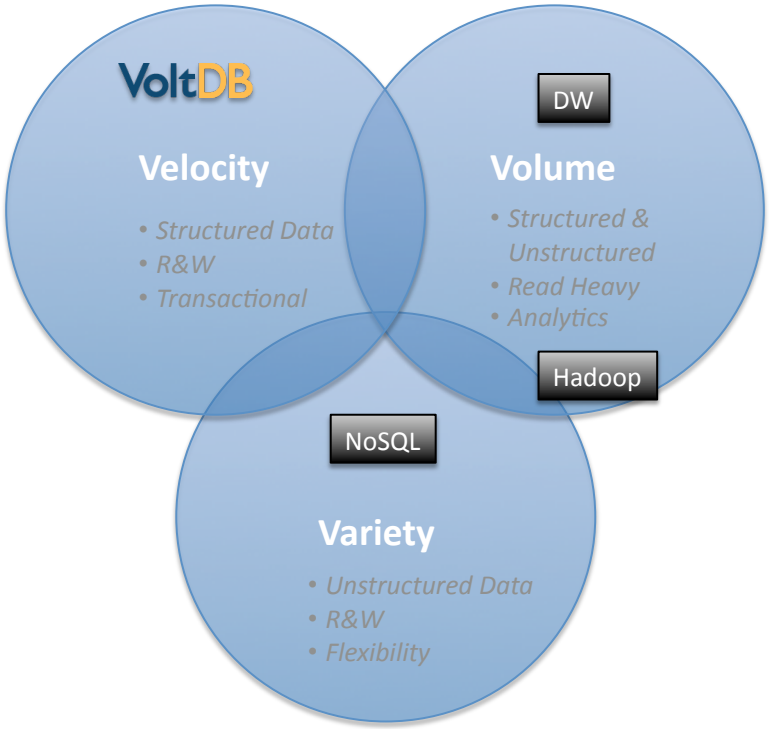
The VoltDB Database

- High-performance RDBMS
- In-memory database
- Automatic scale-out on commodity servers
- Built-in high availability
- Relational structures, ACID and SQL

VoltDB Performance Advantage	
TPC-C single_node (Oracle)	**45 X**
TPC-C single node (MySQL)	**100 X**

Cost Disruption		
	Ex. Traditional RDBMS	VoltDB
System	SPARC SuperCluster/ Oracle 11g	18 , 8-core Intel servers
Price/tpmC	$ 1.01	**$0.012**

Relationship of the 3 V's



- Unique optimizations for each
- Natural partnerships across
- Core technology barriers

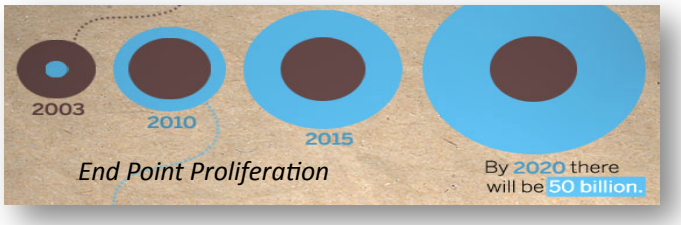
- Look for right tool, polyglot and partners!

"The leading edge of big data is streaming data." -TDWI

Market Disruption from Data Creation

Macro Trends

- **Creation**: End points X processing X network
- **Data**: Perceived as competitive weapon
- **Speed**: Value radically increases as you approach real-time decisioning
- **Eco-system**: Datastore integrations



Every 60 seconds…
168 million emails sent
694,445 search queries
98,000 Tweets
695,000+ Facebook updates
13,000+ iPhone apps downloaded

Traditional database architectures can't keep up

VoltDB