

DATA CUBES

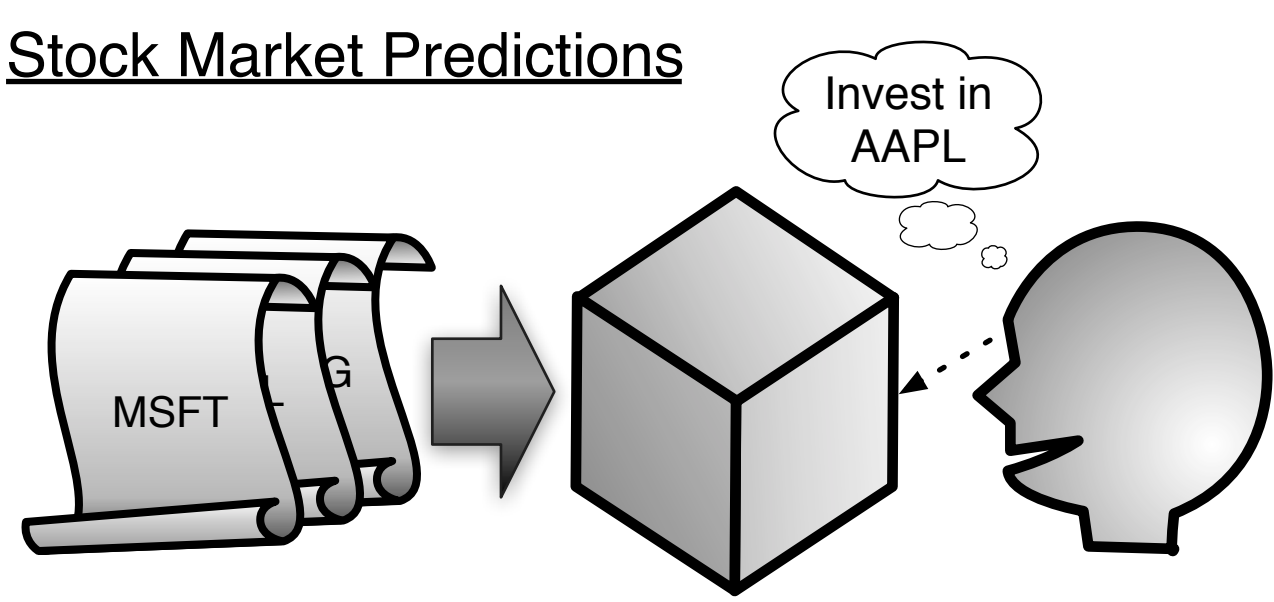
Widgets		
Color	Year	Sales (mln)
Blue	2010	80
Red	2010	70
Blue	2011	100
Red	2011	120

Color	Sales (mln)
Blue	180
Red	190

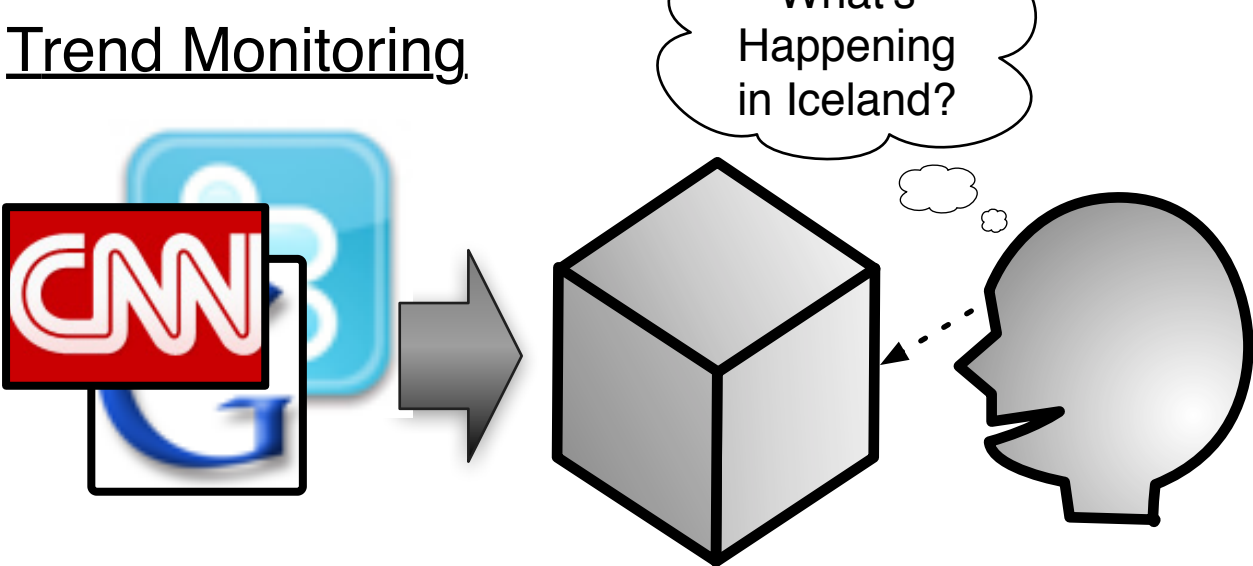
Year	Sales (mln)
2010	150
2011	220

APPLICATIONS

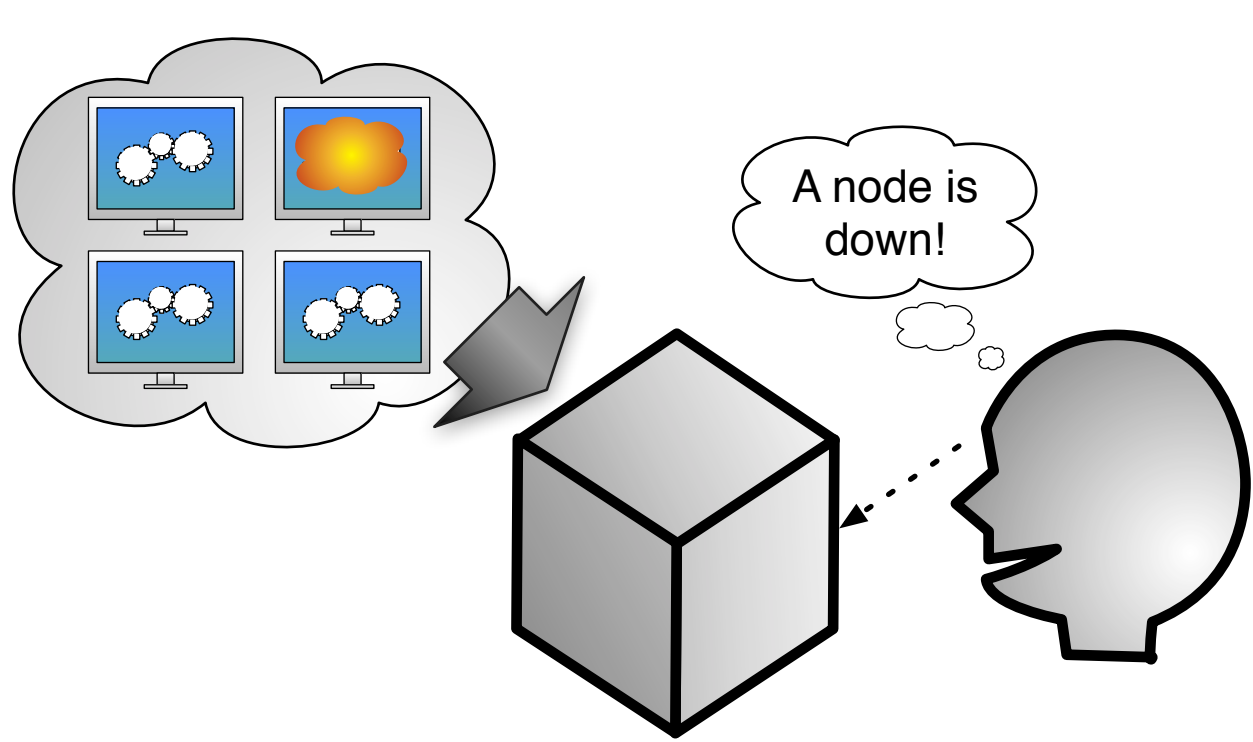
Stock Market Predictions



Trend Monitoring



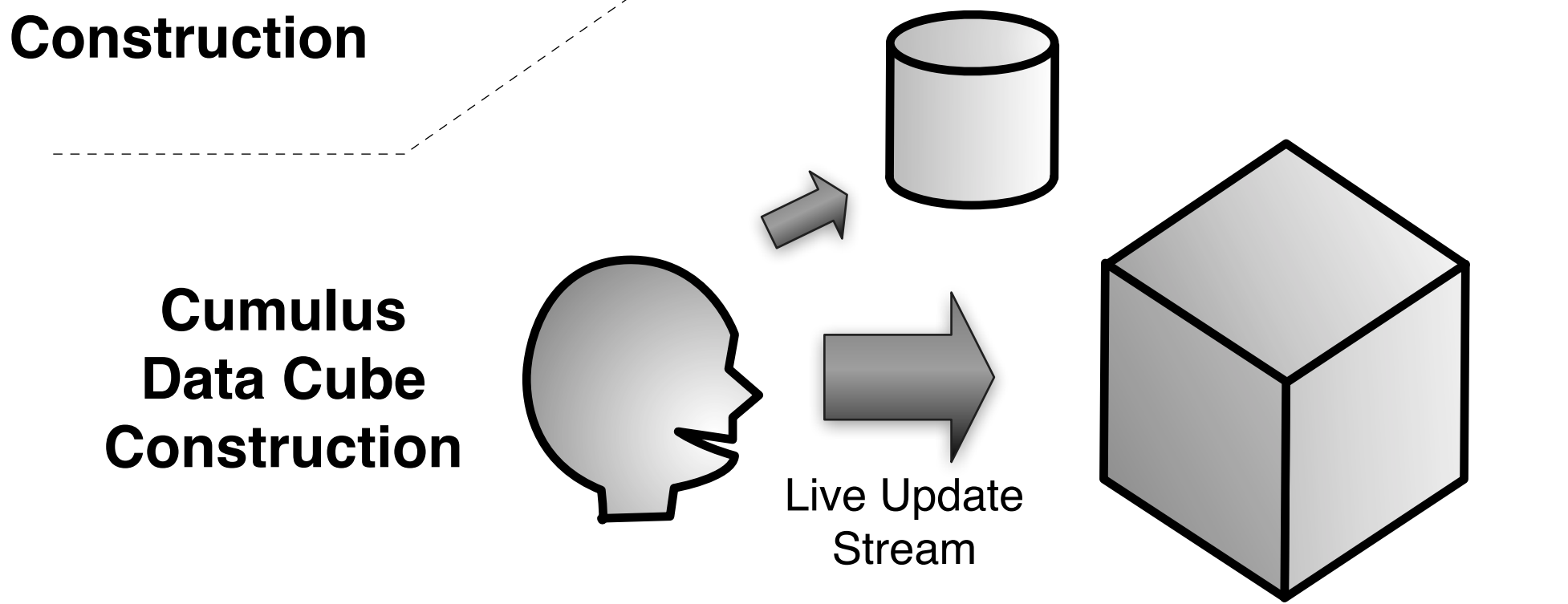
Network Management



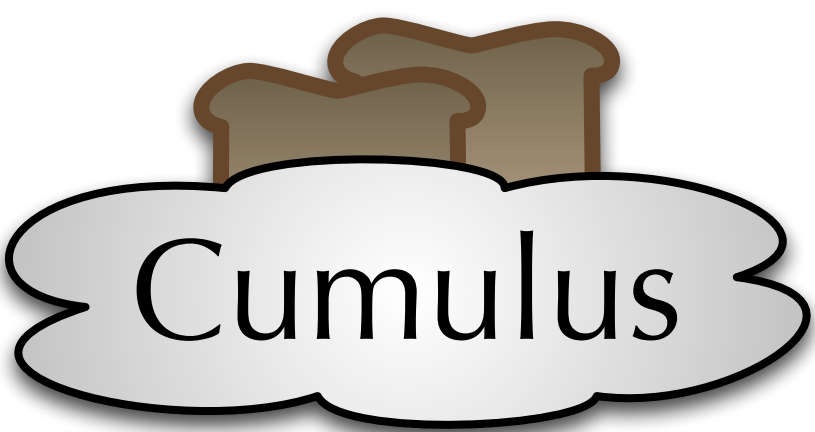
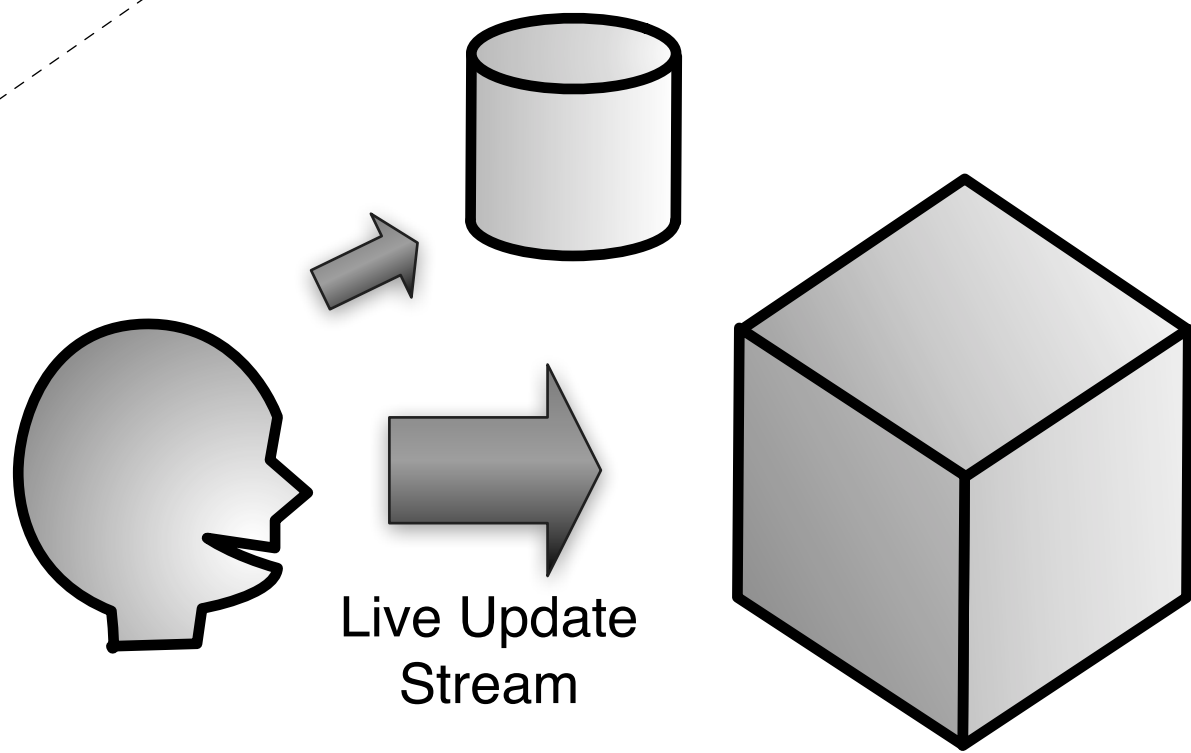
STREAM MONITORING

Approach	Design	Limitations
Stream Processors (Streambase, Cayuga)		- Limited Storage - Limited Processing Power - Limited Query Complexity*
Cloud Storage (PNuts, Cassandra, BigTable)		- High Development Costs - Consistency Limitations - High Network Overheads
Cloud Batch Processing (Hadoop, Map/Reduce)		- High Latency - High Network Overheads
Cumulus		

Traditional Data Cube Construction



Cumulus Data Cube Construction



The EPFL D.A.T.A. Lab  
Oliver Kennedy  
Aleksandar Vitorovic  
Christoph Koch



