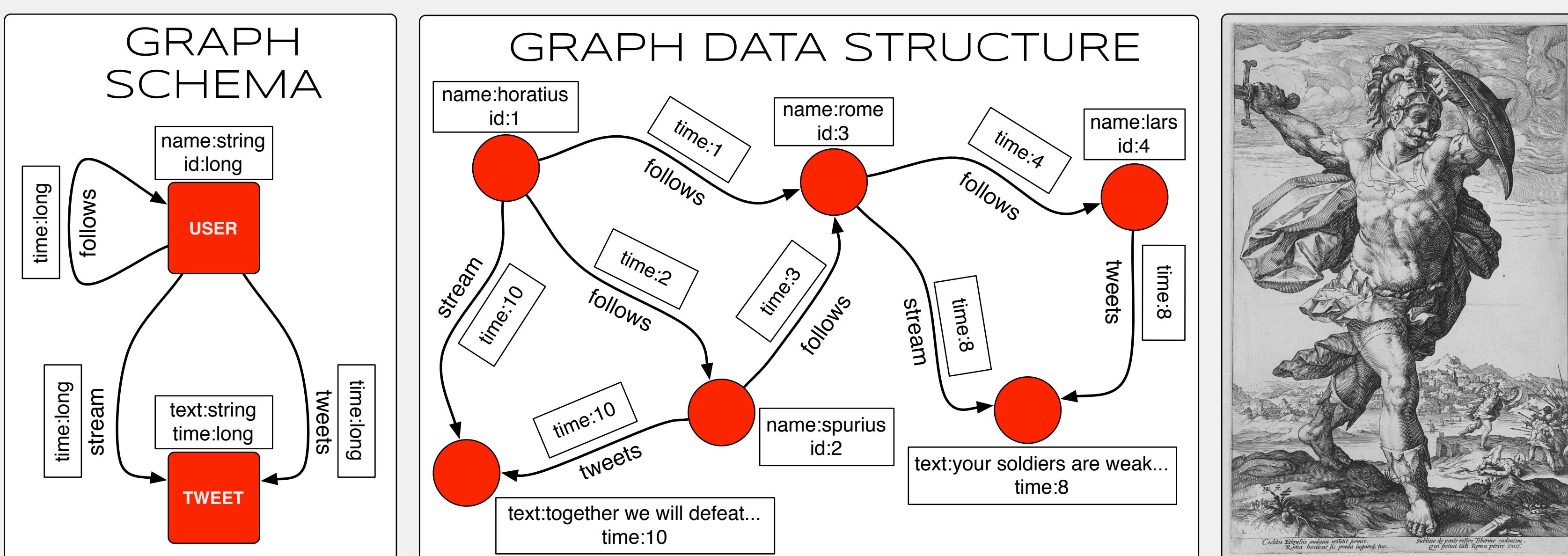


# TITAN

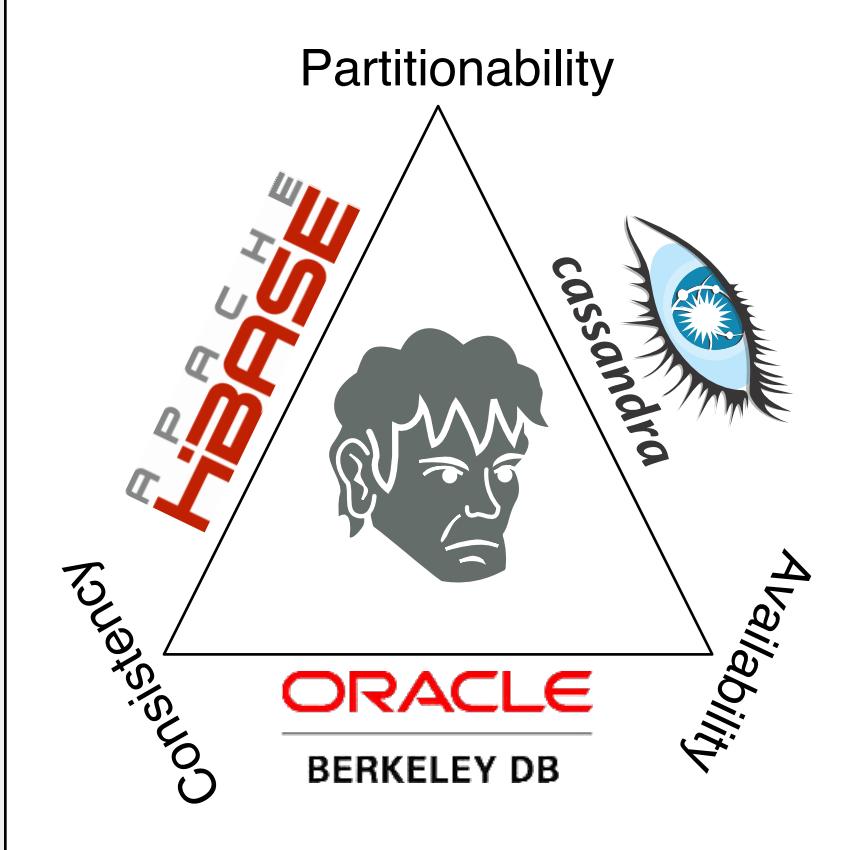
## A HIGHLY SCALABLE, DISTRIBUTED GRAPH DATABASE



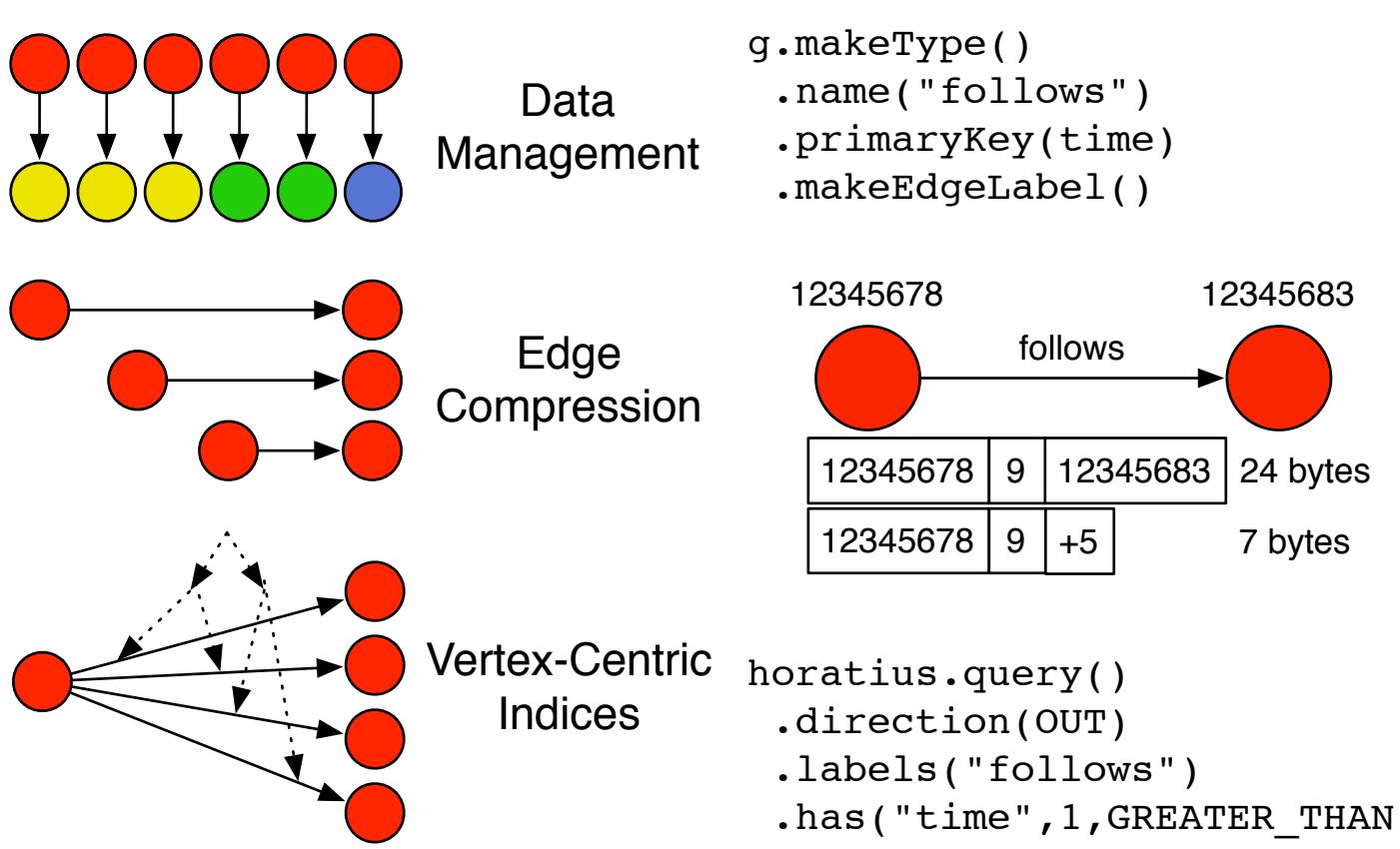
AURELIUS  
HTTP://THINKAURELIUS.COM



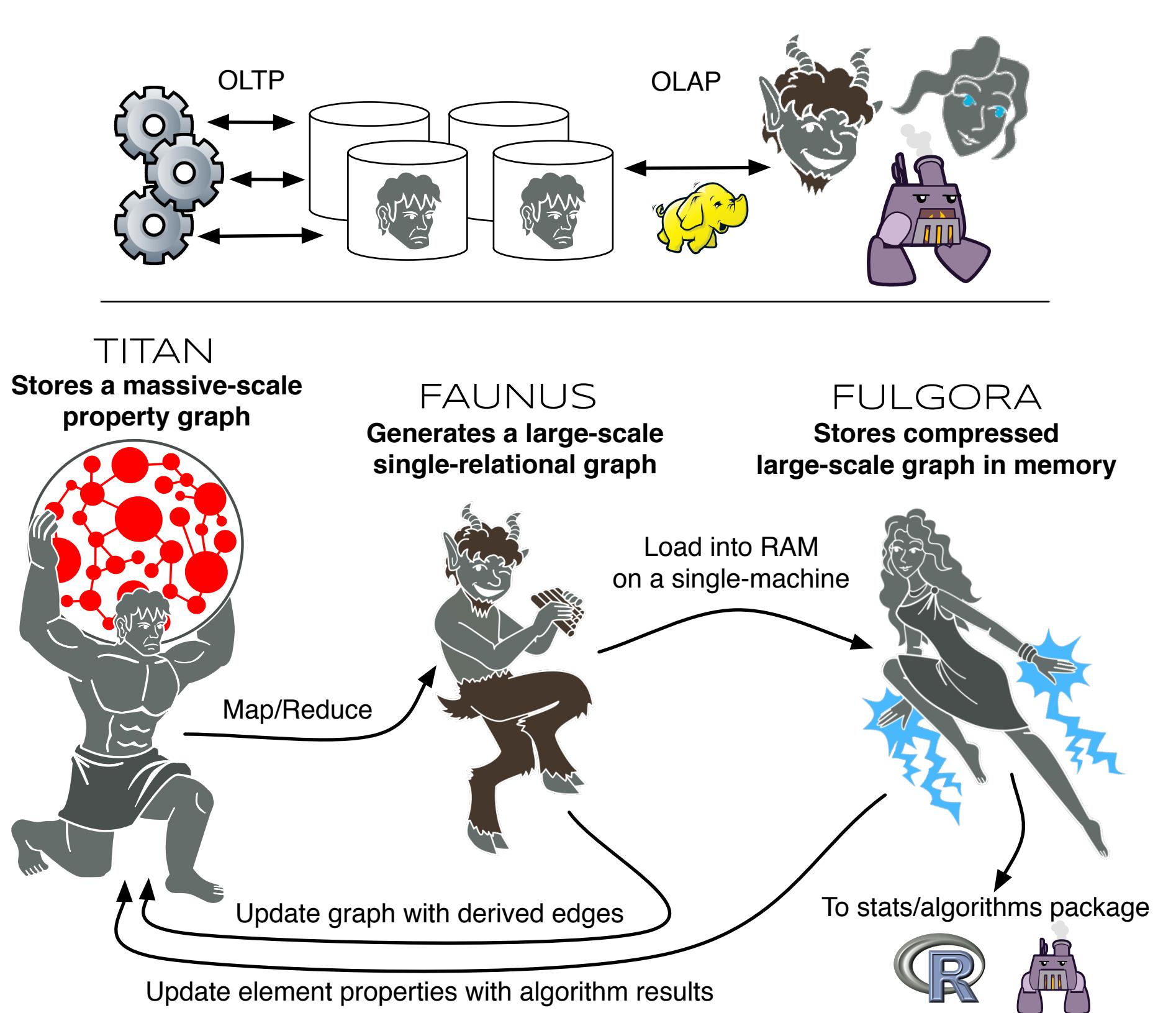
### CAP THEOREM



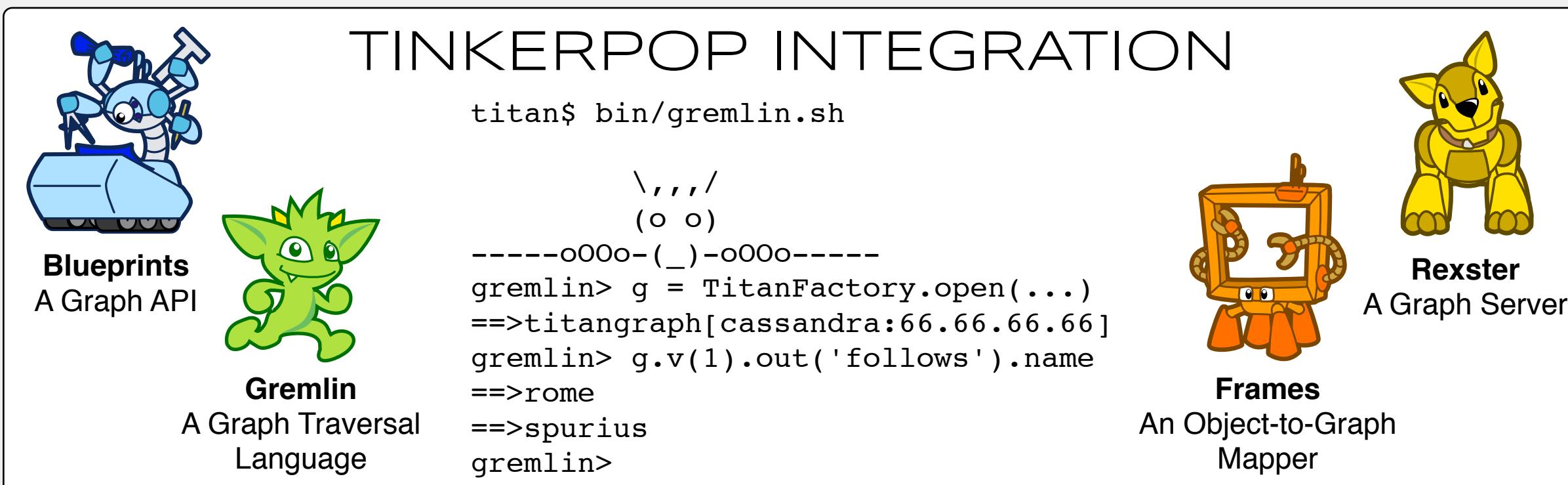
### TECHNIQUES FOR SCALE



### THE AURELIUS OLAP STORY

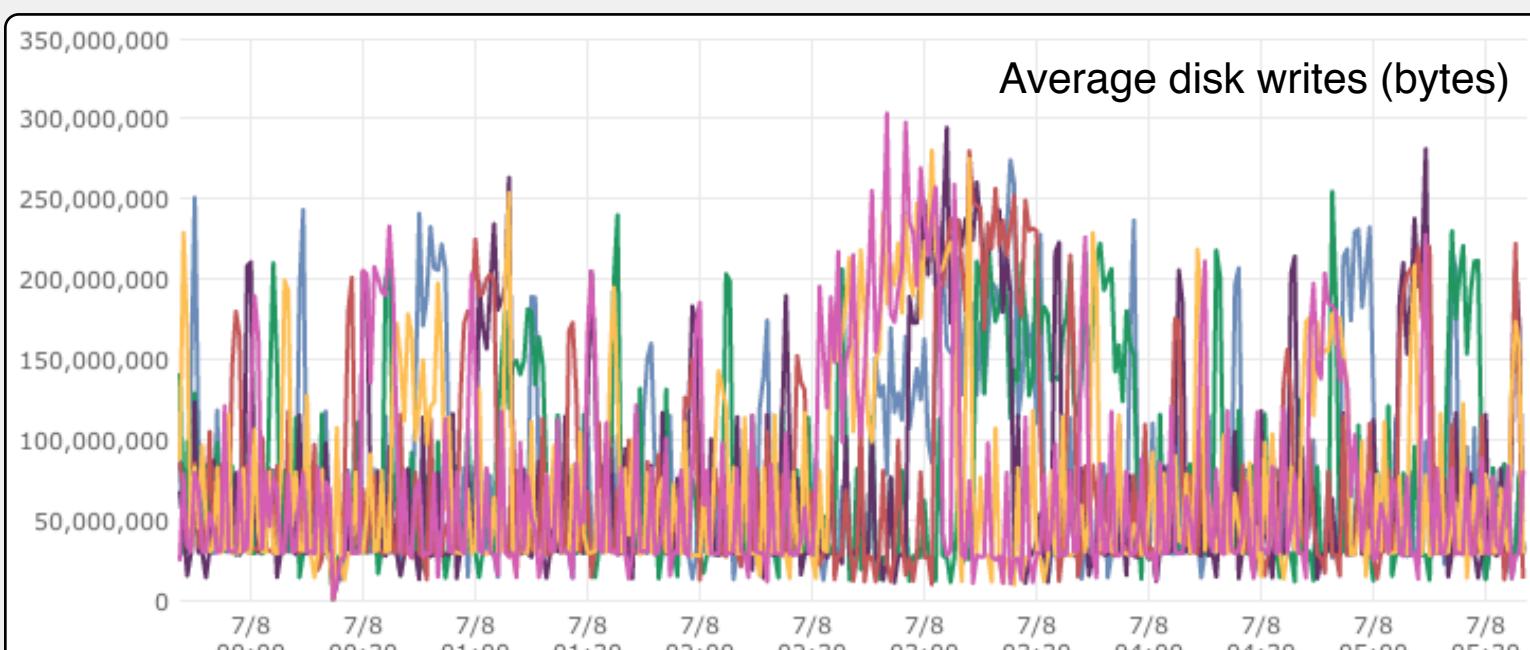
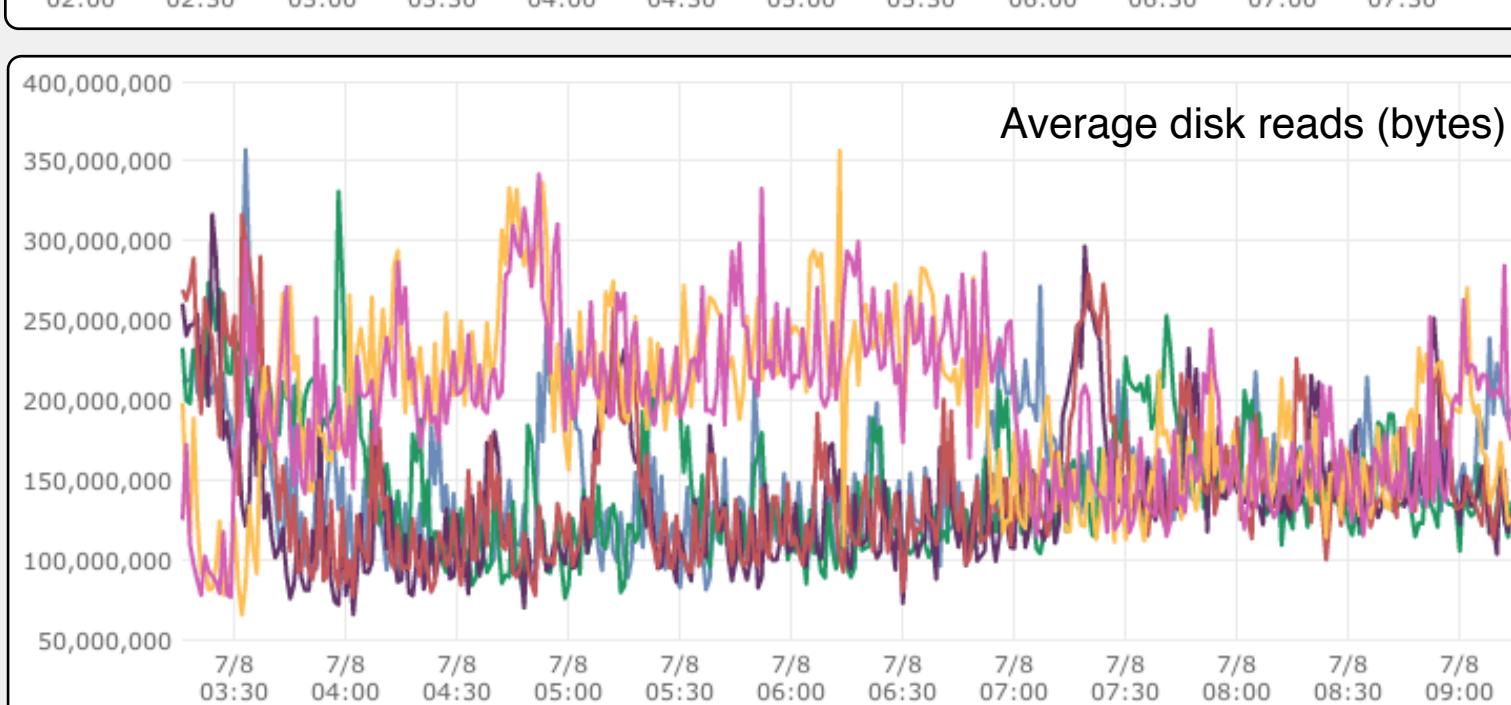
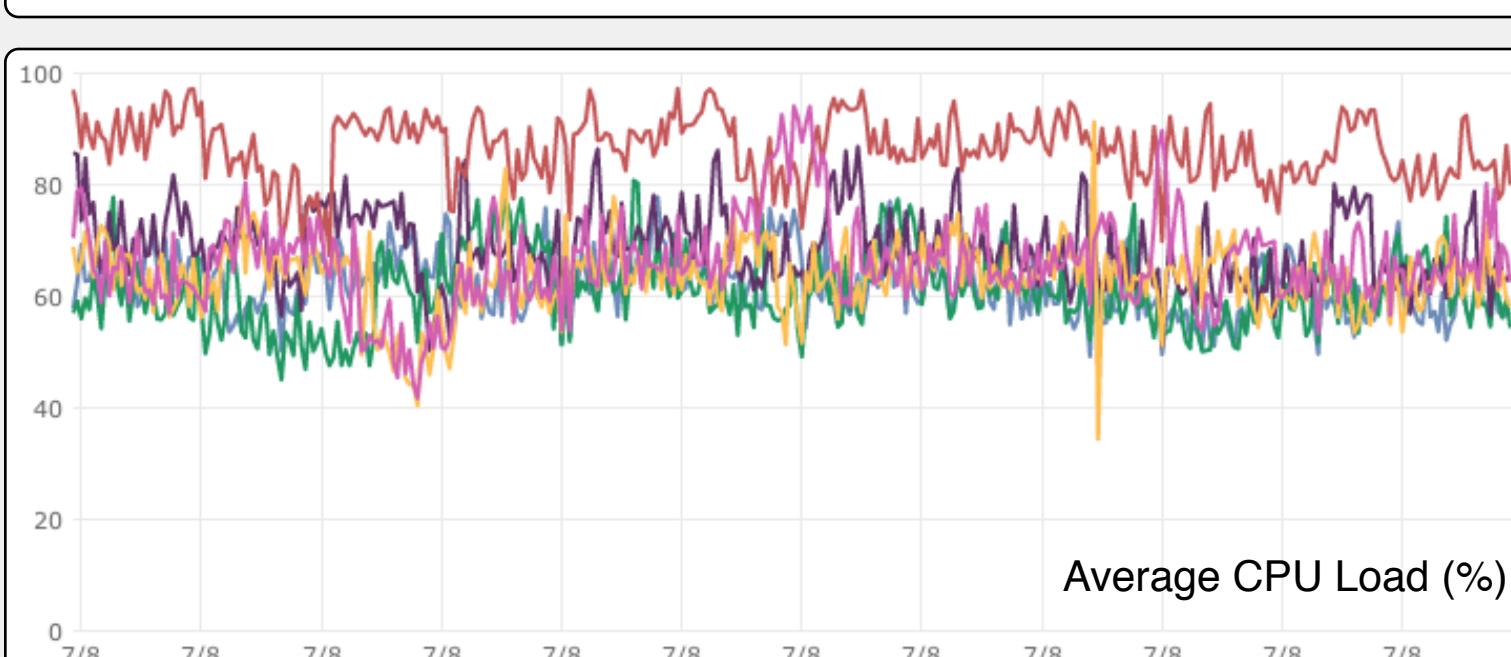


### TINKERPOP INTEGRATION



### A SOCIAL STRESS TEST

**horatius:** @lars: your siege on @rome will end now.  
**lars:** @horatius: unlikely as your soldiers are weak and few.  
**horatius:** @spurius: let us assemble our remaining men on the bridge.  
**spurius:** together we will defeat the #etruscan invaders. cc/ @rome  
**rome:** history will look kindly on the great roman empire.  
**horatius:** RT @rome history will look kindly on the great roman empire.



The follows graph was generated from Twitter 2009.

**41,700,000** user vertices  
**1,470,000,000** follows edges

Kwak, H., Lee, C., Park, H., Moon, S., "What is Twitter, a Social Network or a News Media?", WWW2010.

Tweet vertex text data is randomly selected character sequences from Homer's *The Odyssey*.



### ARCHITECTURE COST

6 Amazon EC2 m1.large machines  
**Titan/Cassandra cluster**  
\$0.32 per hour x 6 machines x 24 hours  
= \$46.08 per day

14 Amazon EC2 m1.small machines  
**Read/write servers**  
\$0.08 per hour x 14 machines x 24 hours  
= \$26.88 per day

Cost for running this architecture: **\$72.96 per day**

110 million transactions per day  
(99.99% success rate)



\$72.96 / 110 = **\$0.66** per million transactions

14 machines x 50 threads x ~15 users simulated per thread  
= **~10,500 concurrent users**

