The CoDeeN Content Distribution Network
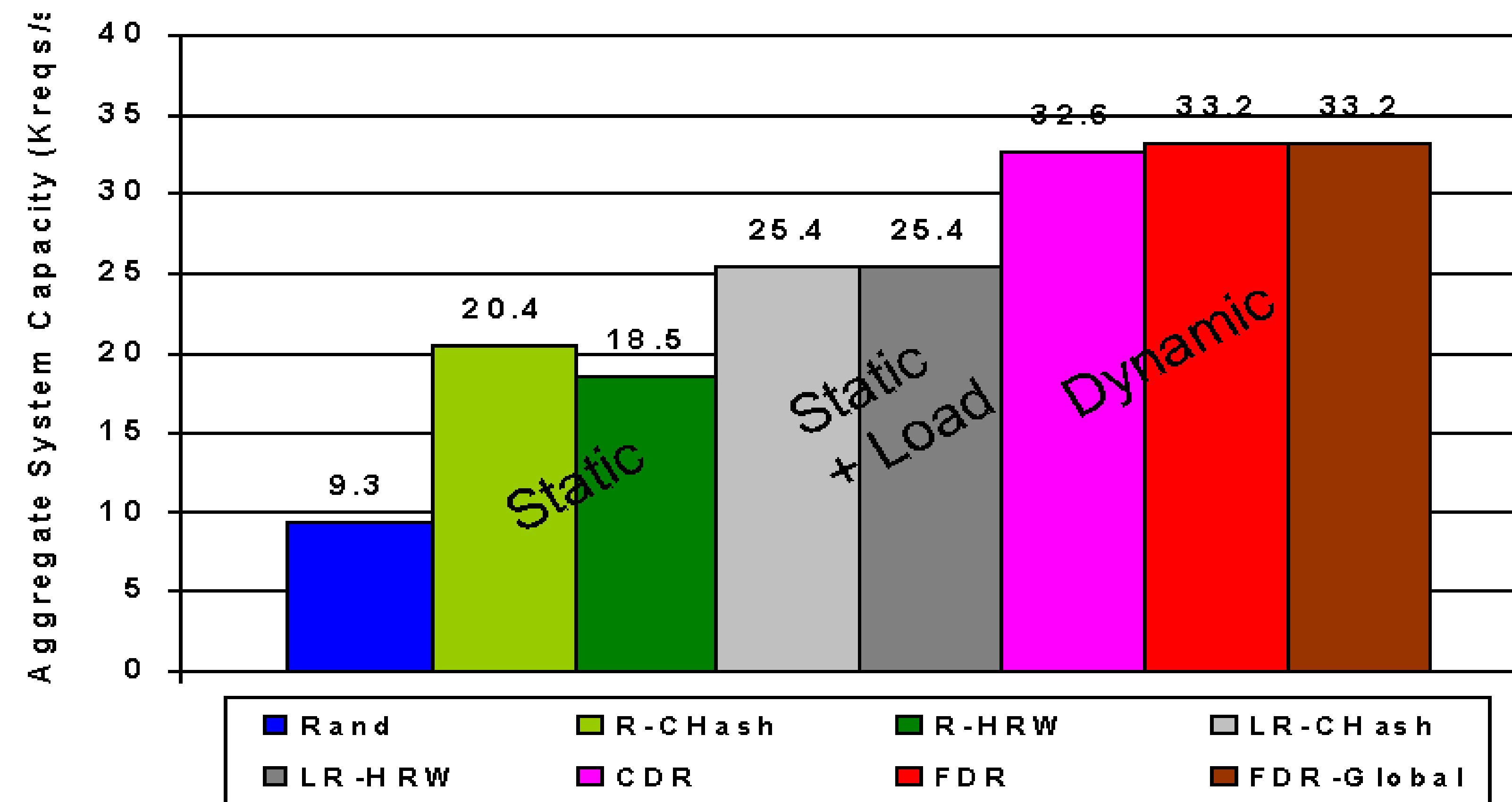
Limin Wang
Vivek S. Pai
Larry Peterson
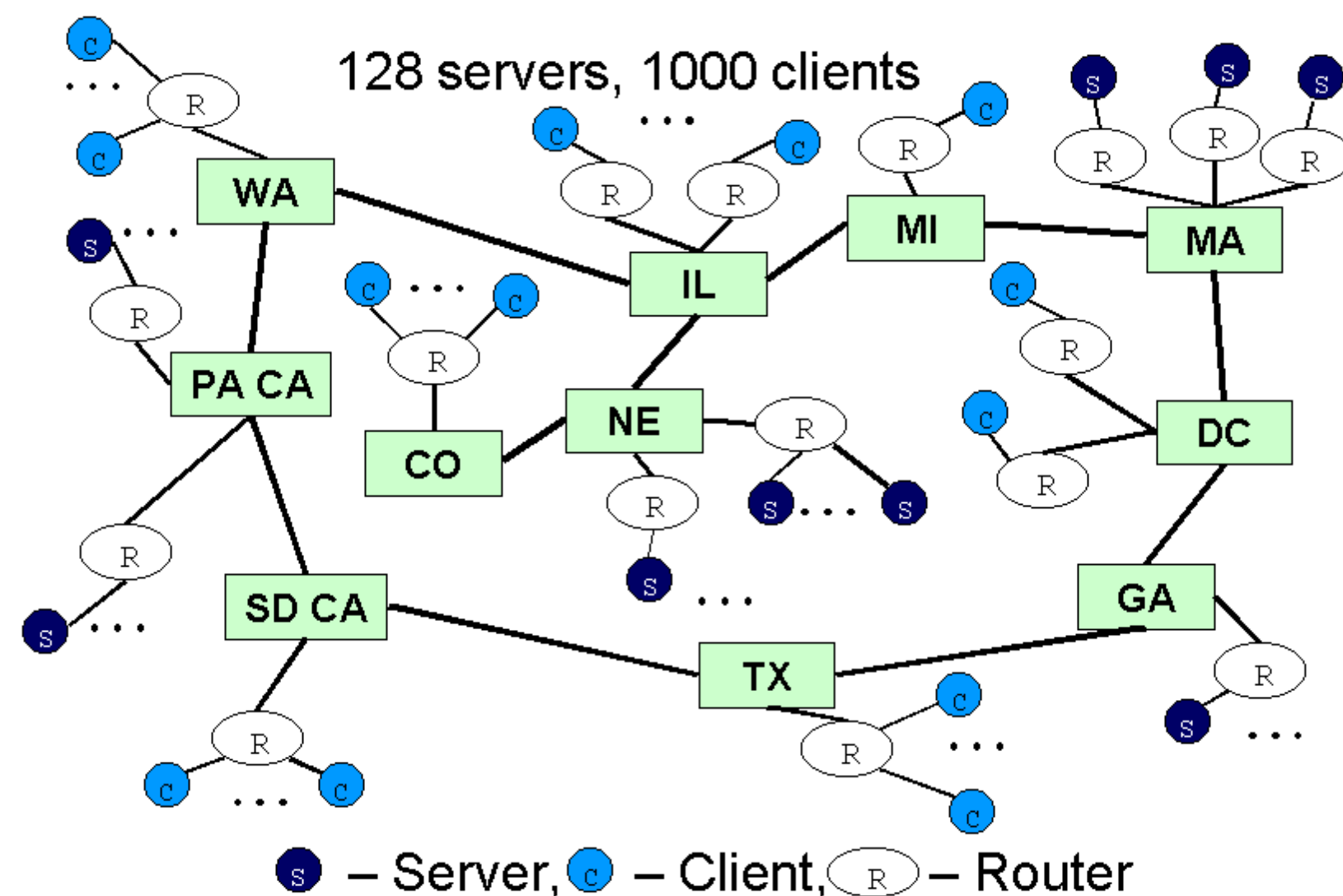*Princeton University*

Concept

- client
- server surrogate
- redirector

Sim Topology

128 servers, 1000 clients

S – Server, C – Client, R – Router
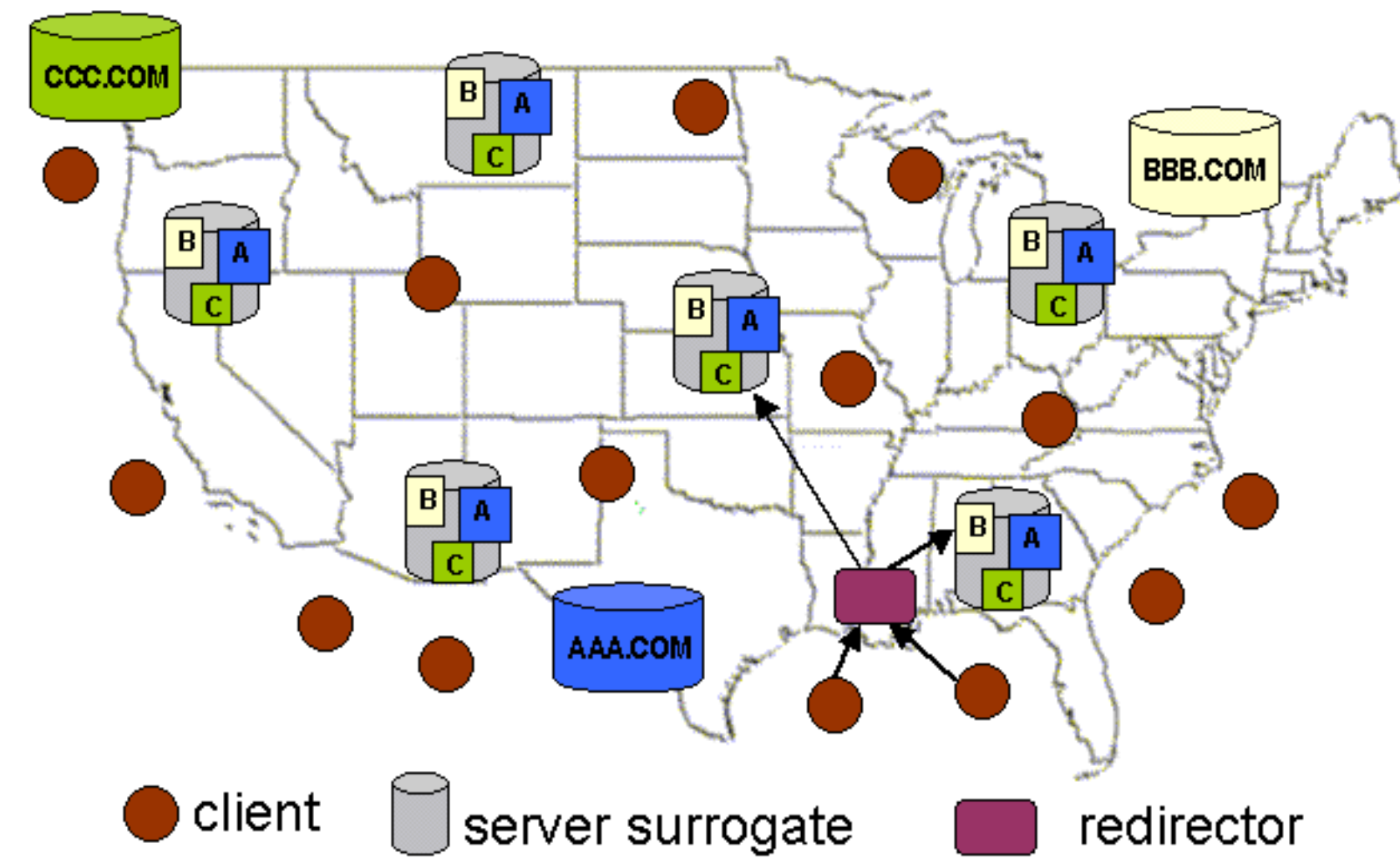
Strategies

Category	Strategy	Hashing Scheme		Dynamic Server set?	Load aware?
		CHash	HRW		
Random	Random				
Static	R-CHash	✓			
	R-HRW		✓		
Static +Load	LR-CHash	✓			✓
	LR-HRW		✓		✓
Dynamic	CDR		✓	✓	✓
	FDR		✓	✓	✓
Network Proximity	NPR-CHash	✓			
	NPLR-CHash	✓			
	NP-FDR		✓	✓	✓

Simulated Throughput

Bottleneck Analysis

Utilization Scheme	Max Thpt (Kreq/s)	DISK(%)		CPU(%)	
		Mean	Stddev	Mean	Stddev
Random	9.3	100.0	0.00	21.03	1.36
R-CHash	20.4	99.15	3.89	57.88	18.36
R-HRW	18.5	99.74	1.26	47.88	15.33
LR-CHash	25.4	97.83	12.51	59.48	18.85
LR-HRW	25.4	99.00	5.94	58.43	16.56
CDR	32.6	36.10	25.18	90.07	11.78
FDR	33.2	33.96	20.38	93.86	7.58
FDR-Global	33.2	17.60	15.43	91.93	11.81

CoDeeN Node Architecture

- CoDeeN Node
- CoDeeN Reverse Proxies
- Client
- Origin Server
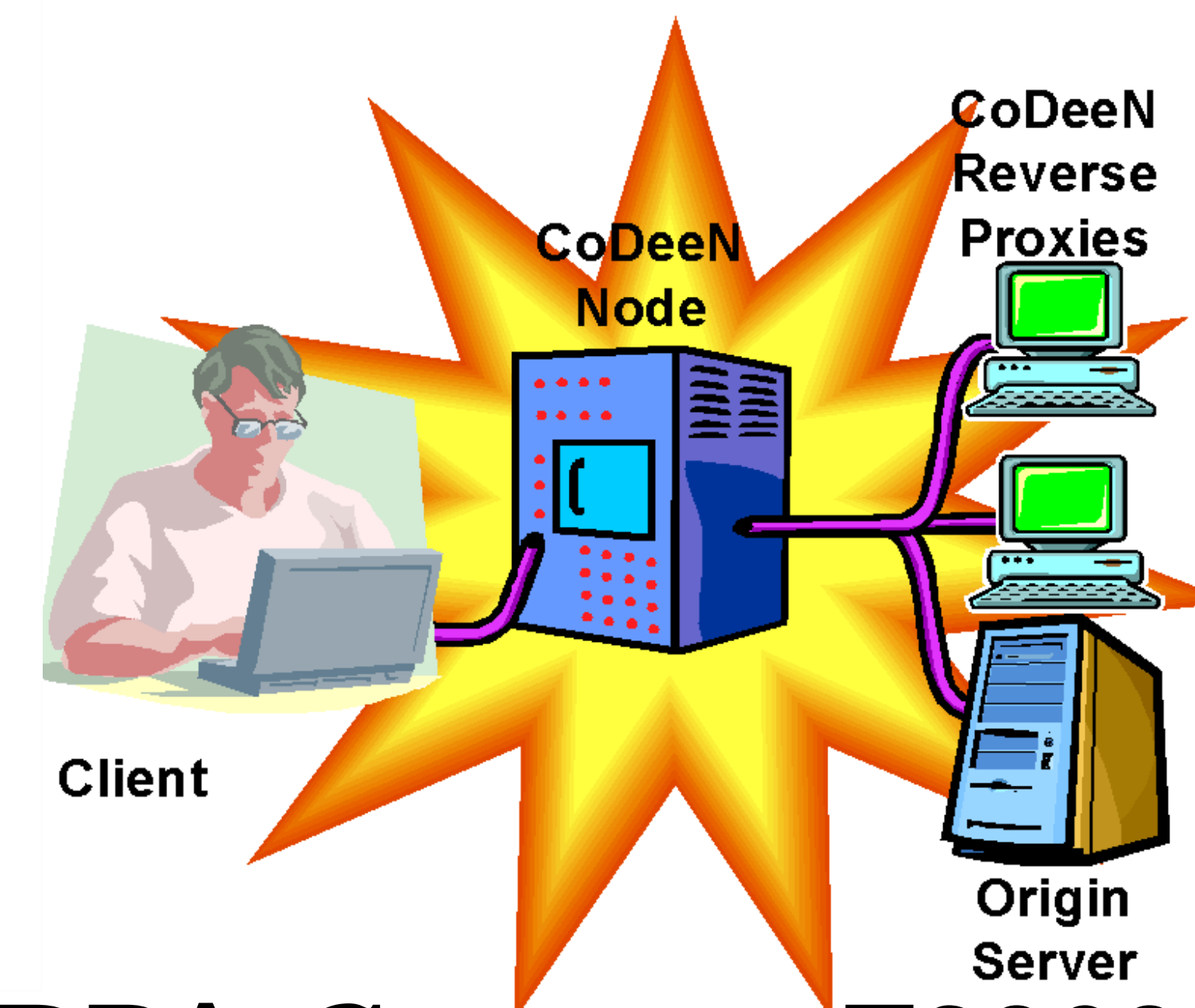
Timeline

December 2002
Presentation at OSDI'02 -- "The Effectiveness of Request Redirection on CDN Robustness"

January 2003
CoDeeN prototype developed
12 nodes operational
40 nodes planned

February 2003
Monitoring interface
Public announcement

Donors/Partners