

Value of Future Internet capabilities: Multi-domain (Big-) Data Sharing Models

Stakeholder meeting
Big Data for Logistics
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NWO

COMMIT/



Contexts with potential value to share data

Passenger flow handling



Predictive Maintenance & Scheduling



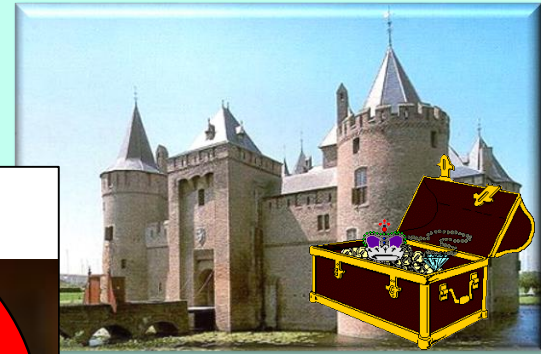
Cargo load optimization & scheduling



Passenger experience



Cybersecurity
(NWO-
COMMIT/
SARNET
project)



Sharing Big Data assets needs:



Clearly defined and agreed common benefit



Established common rules governing use, access and benefit sharing.

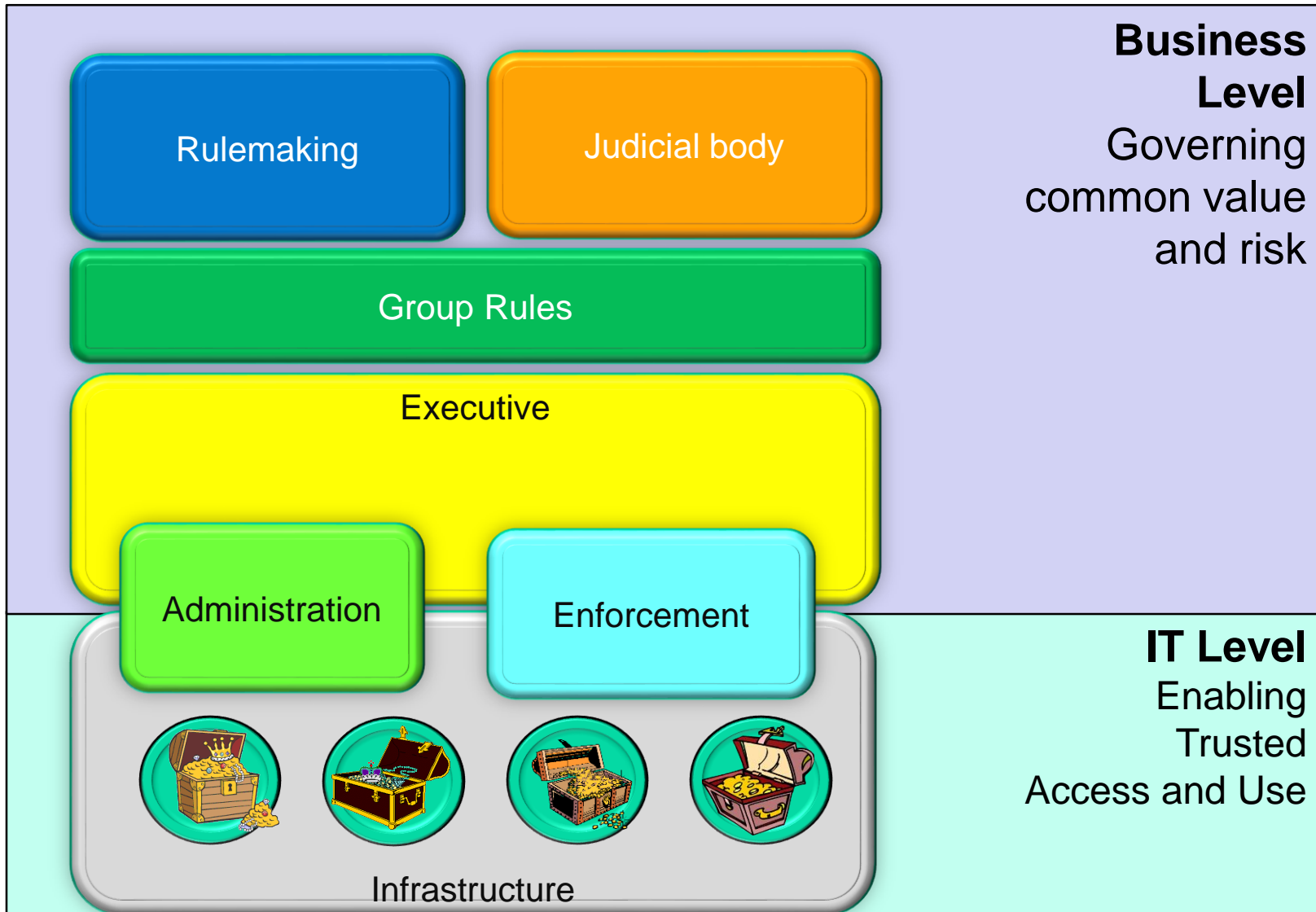


Organizing trust amongst group members as means to reduce risk



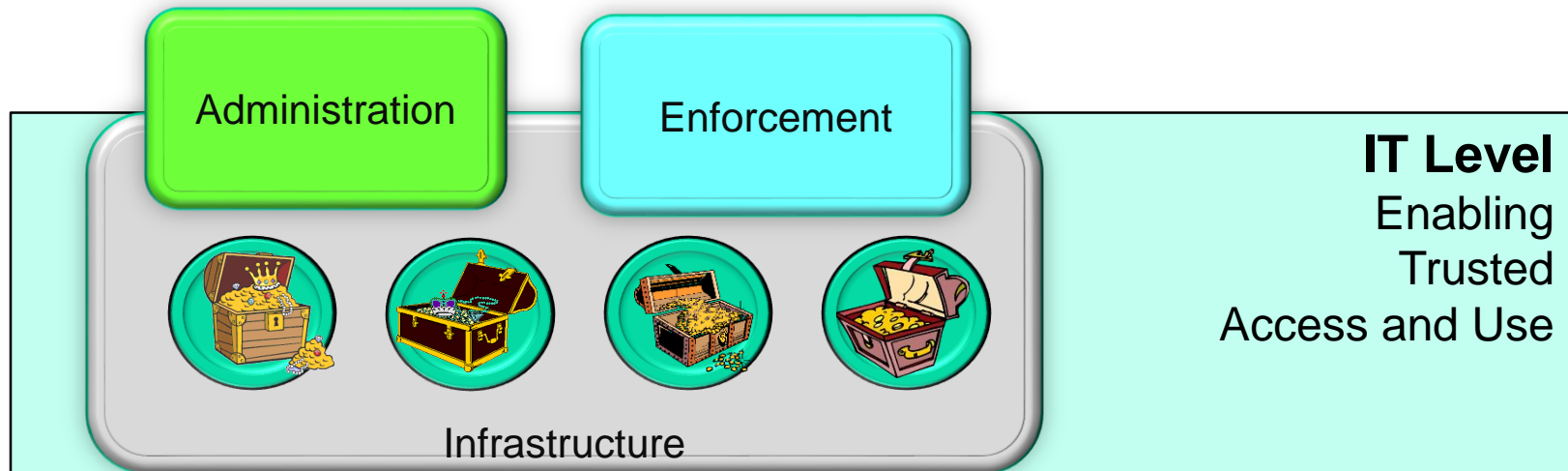
Infrastructure supporting implementation of trust

Organizing Trust within a group*



- See Chapter 5 PhD Thesis: “Multidomain Authorization for e-Infrastructures”, Leon Gommans – Dec. 2014h

Research questions

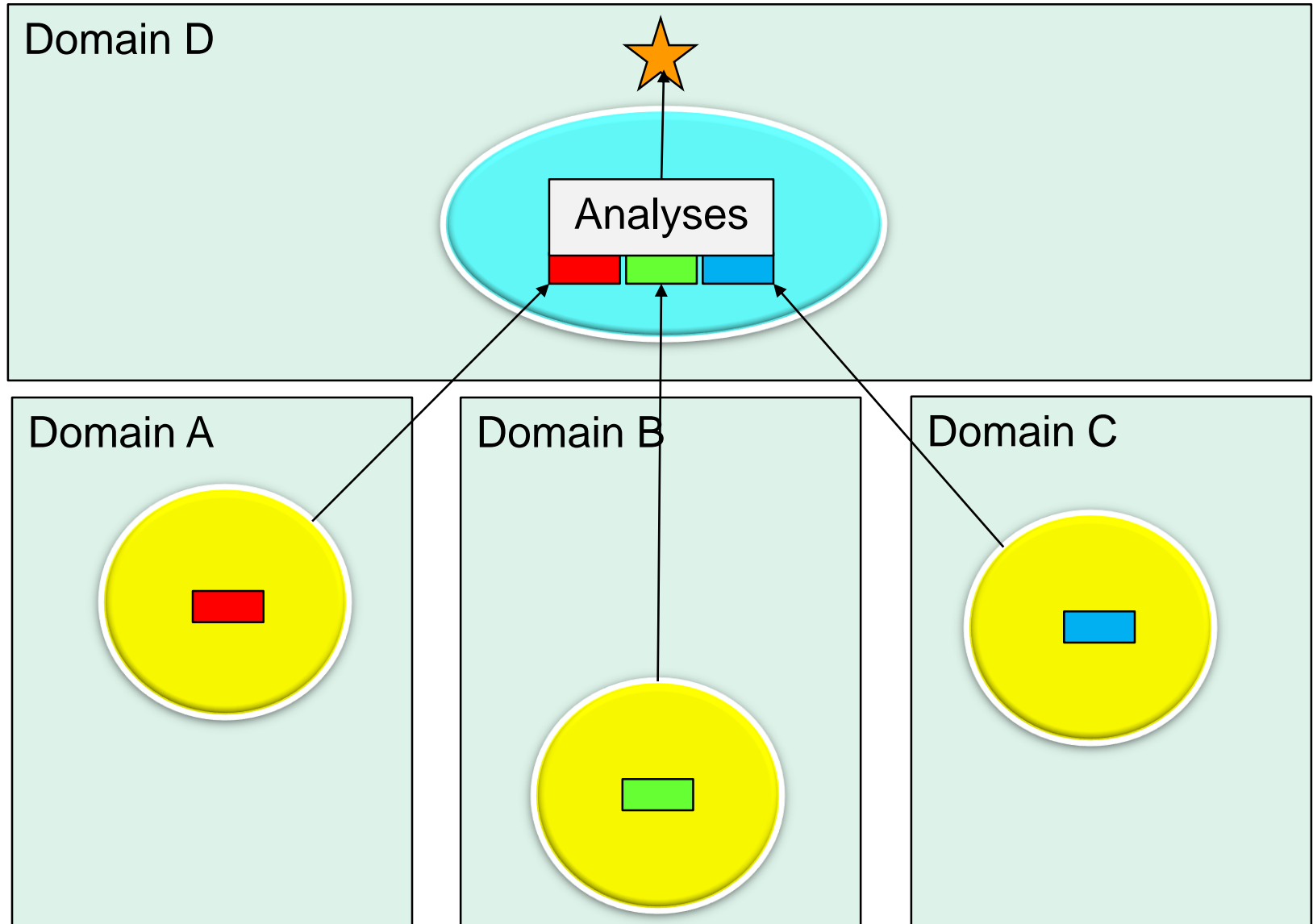


1. Given an agreed benefit to share data within a group of autonomous organisations:

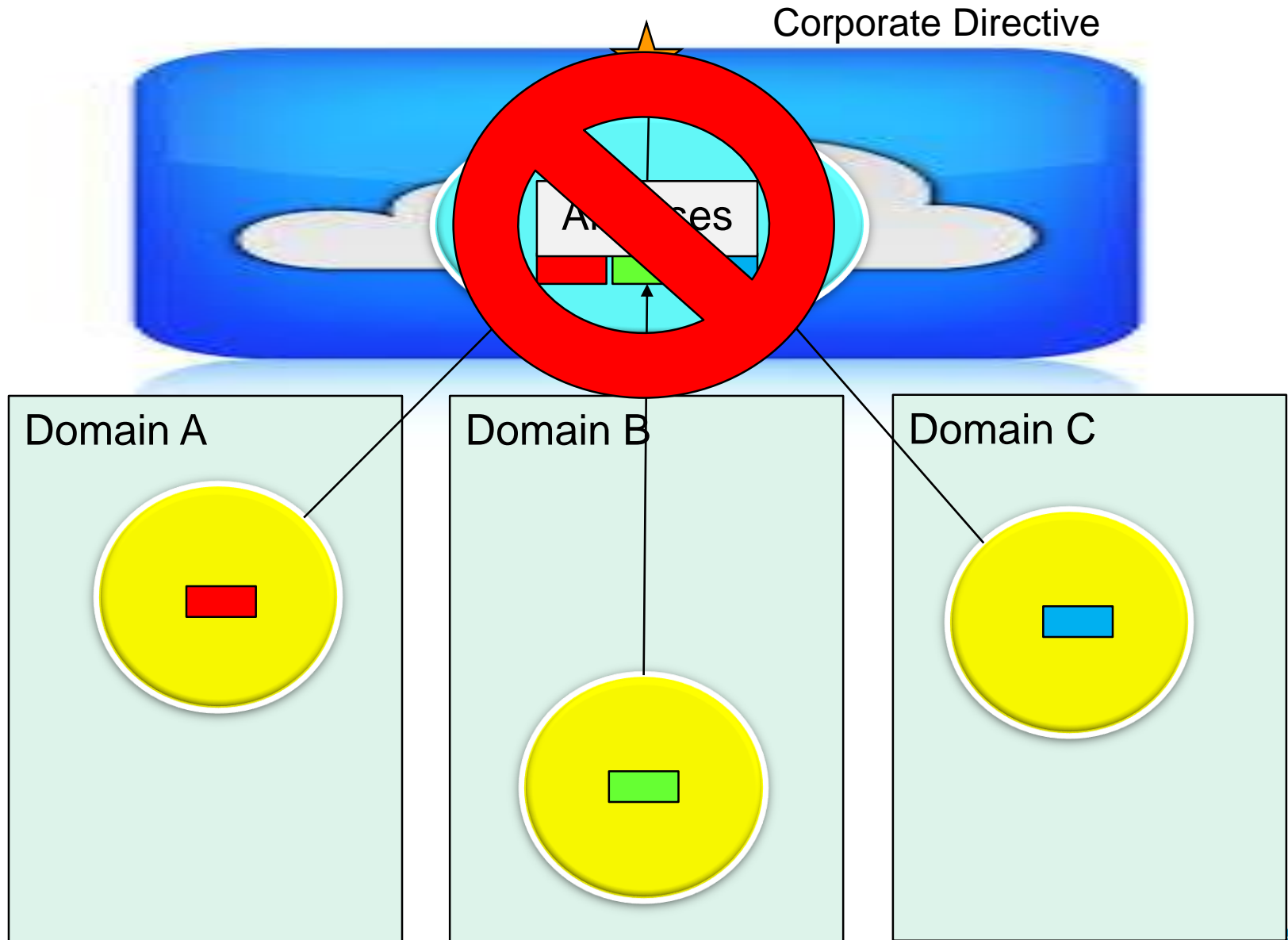
How can trusted sharing of big data assets be securely implemented in an infrastructure?

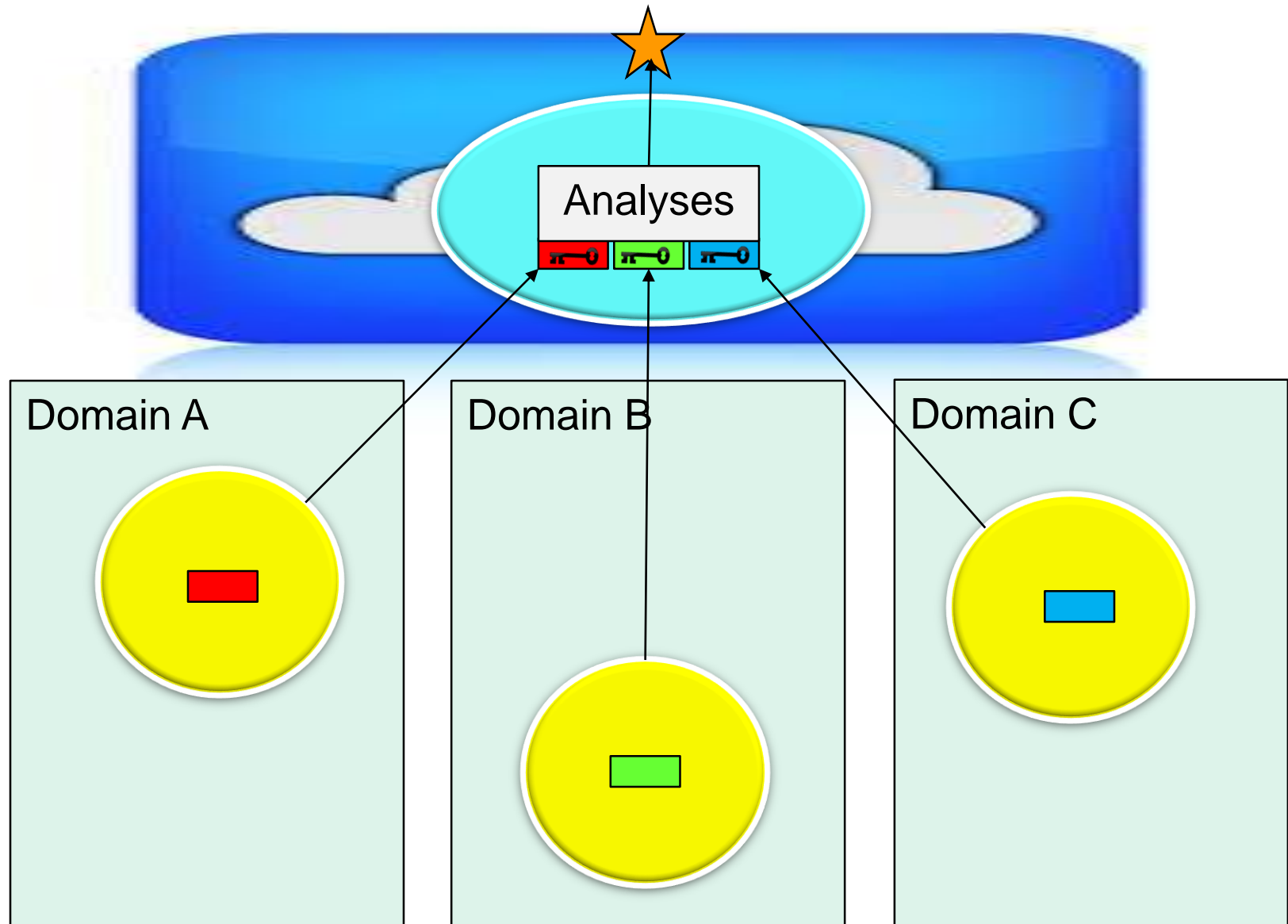
2. Given future, software definable Internet capabilities provides virtually **unlimited** amounts of **dedicated and secure bandwidth**:

What infrastructure models are best suited to perform big data analyses?

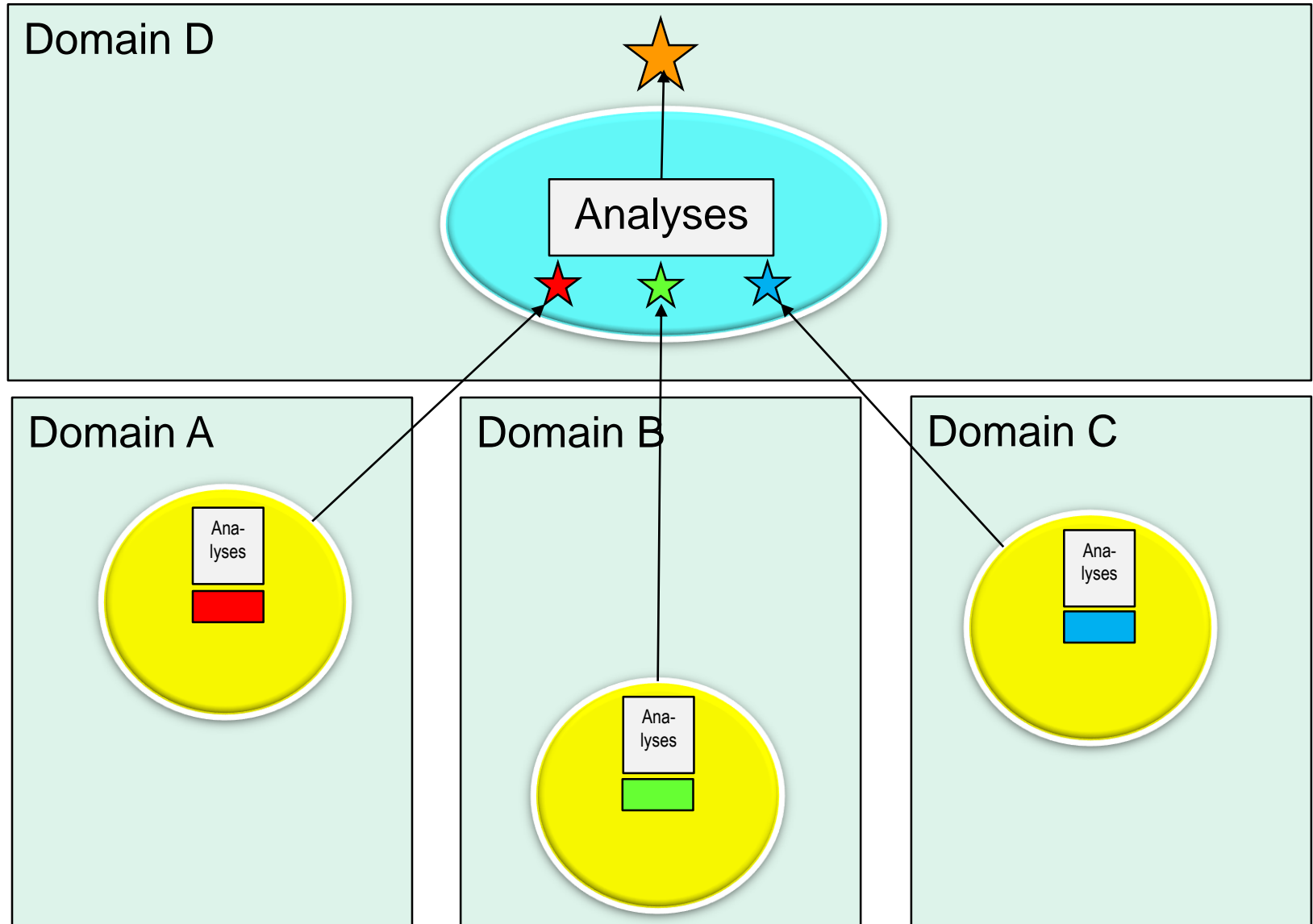


Multi-domain in public cloud

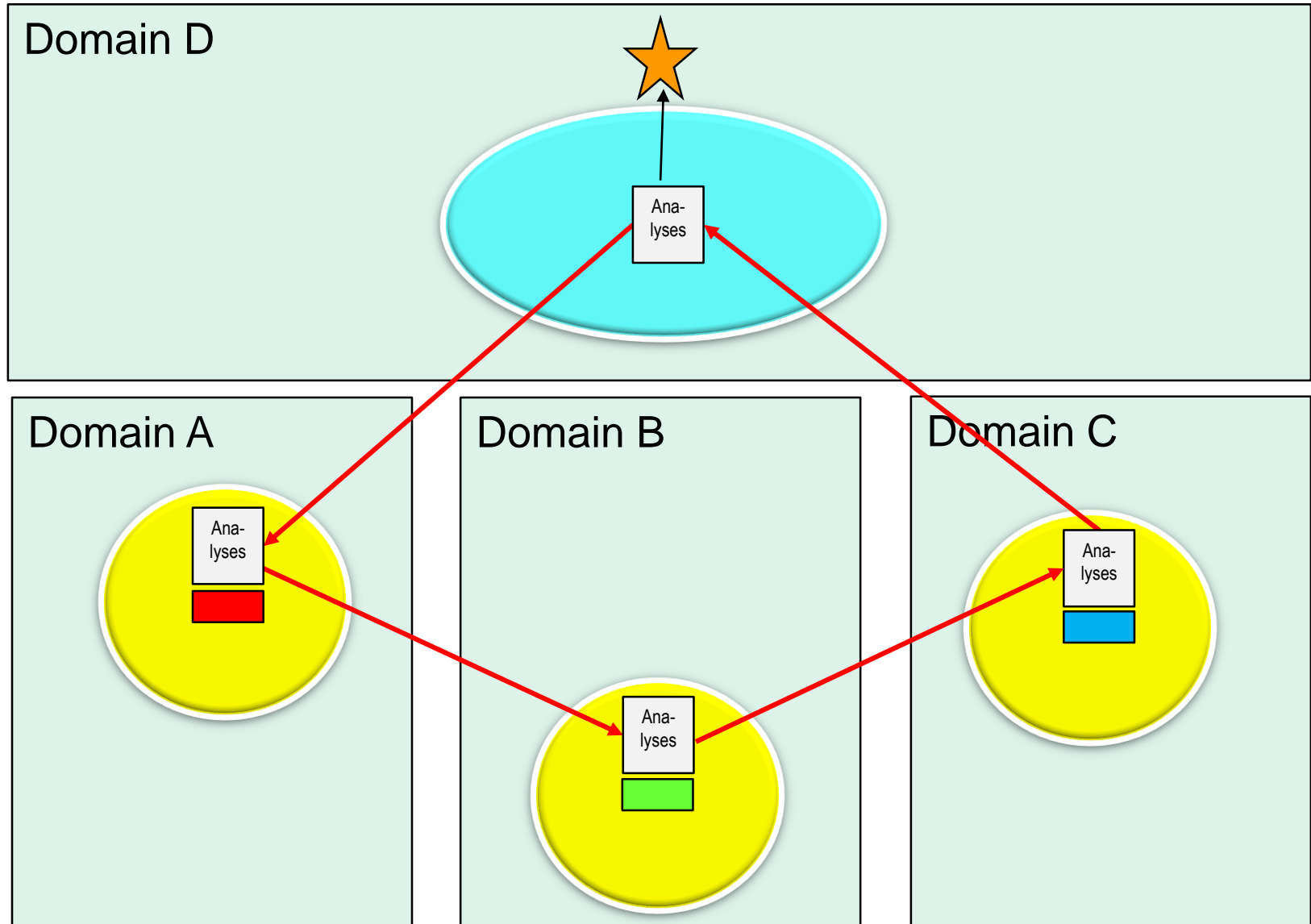




Analyses on spokes, consolidate at hub



“Turntable model*”, reporting result to hub

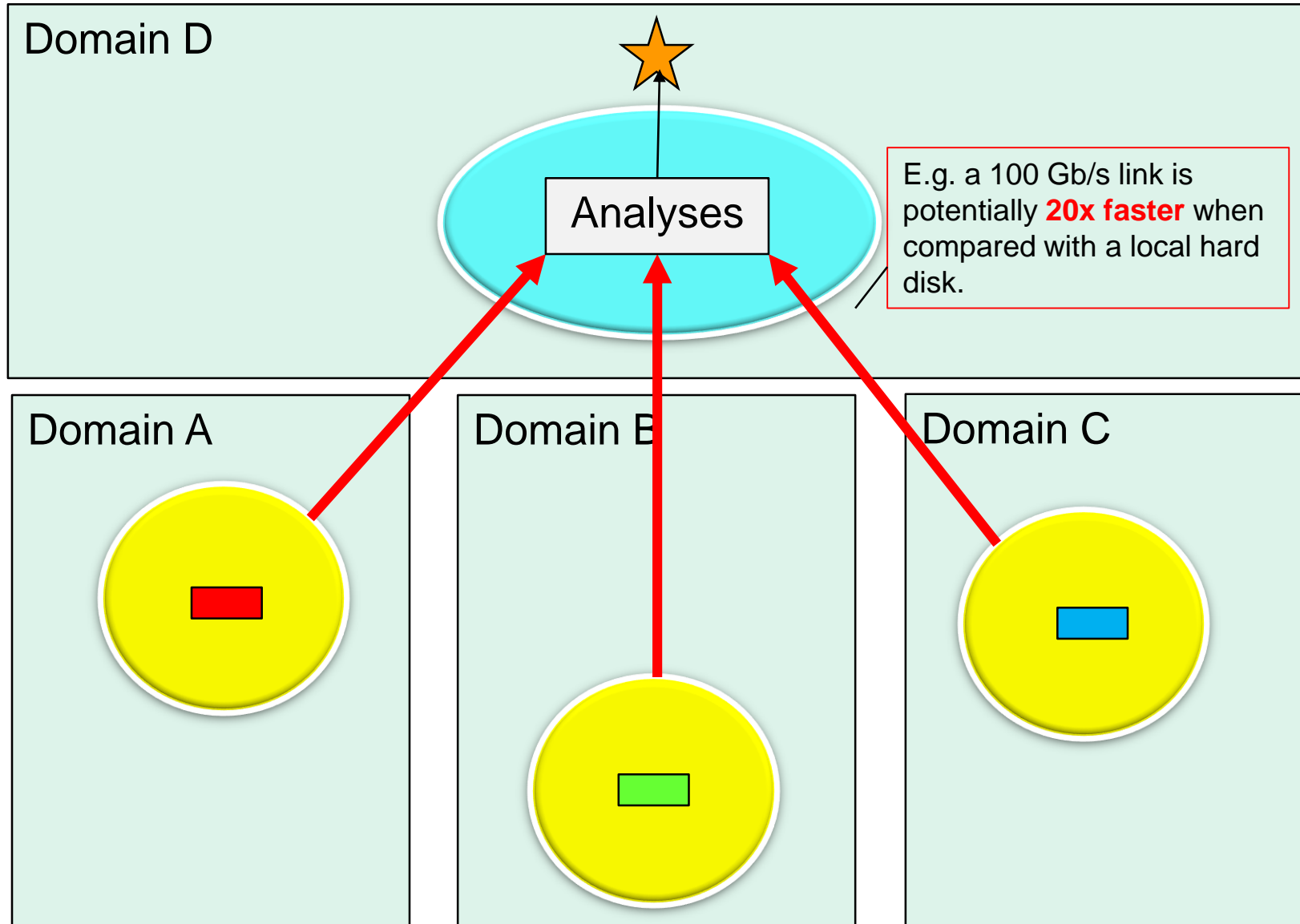


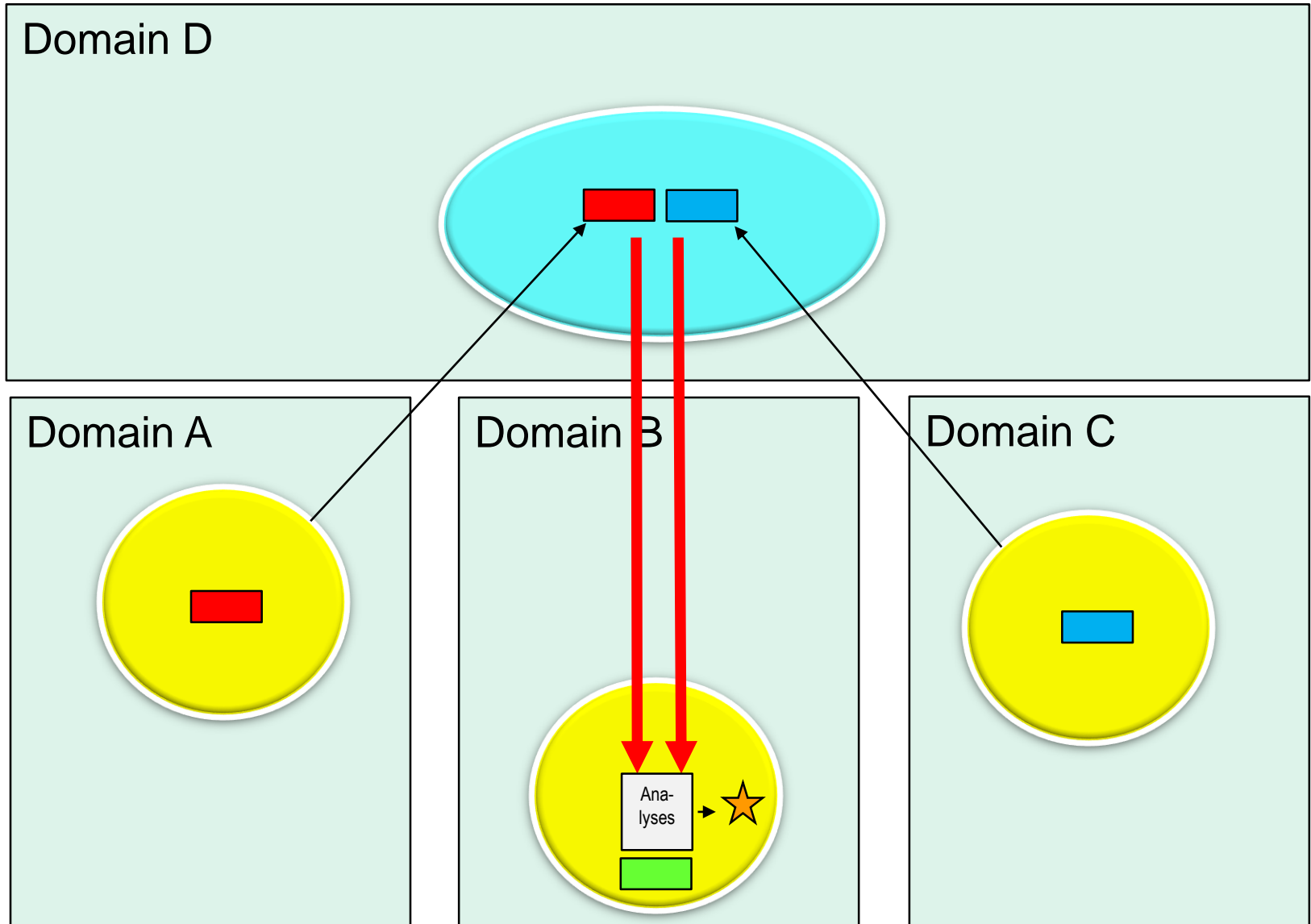
Demo at Supercomputing 2005: Seamless Live Migration of Virtual Machines over the MAN/WAN

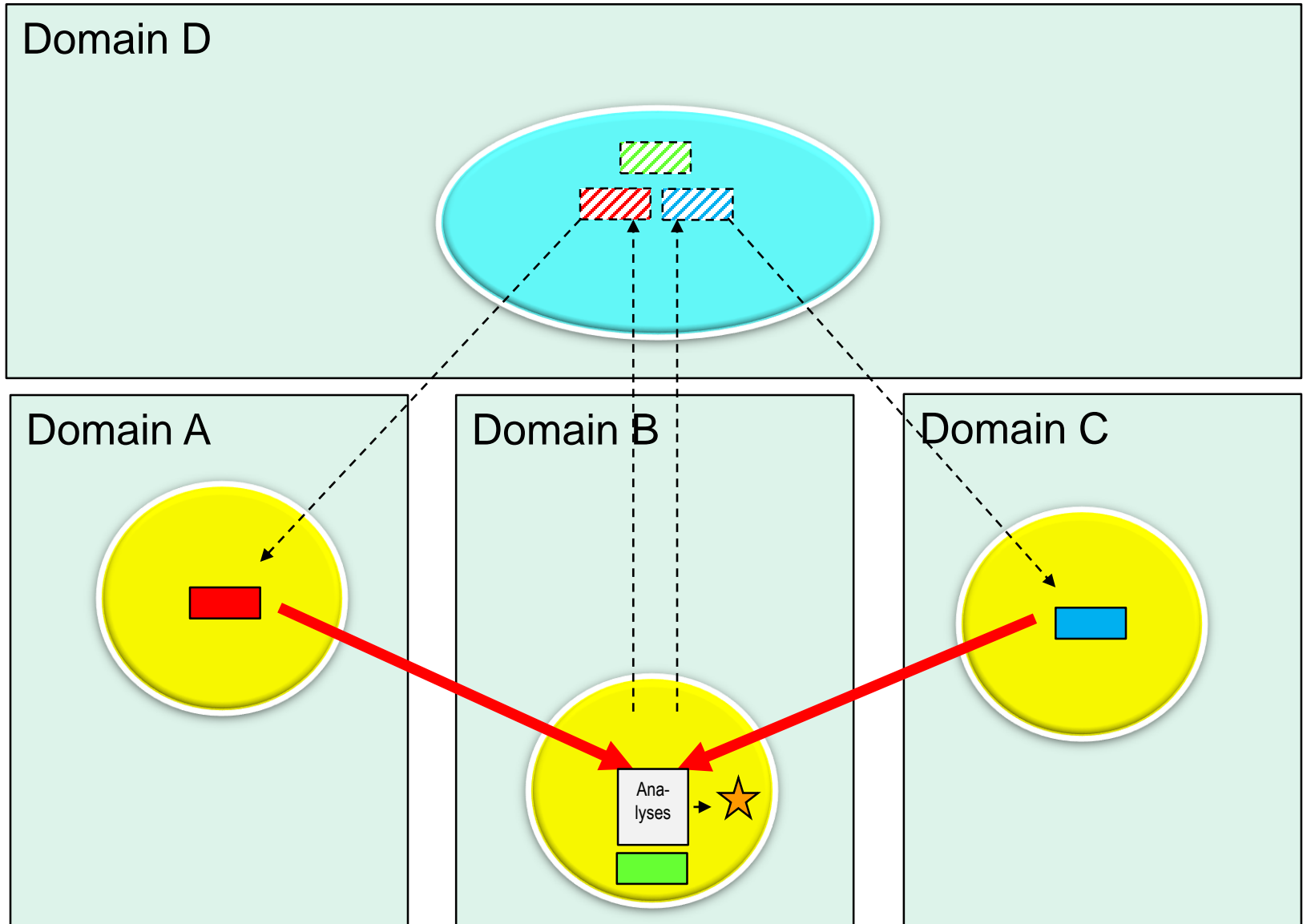
Franco Travostino, Paul Daspit, Leon Gommans, Chetan Jog, Cees de Laat, Joe Mambretti,

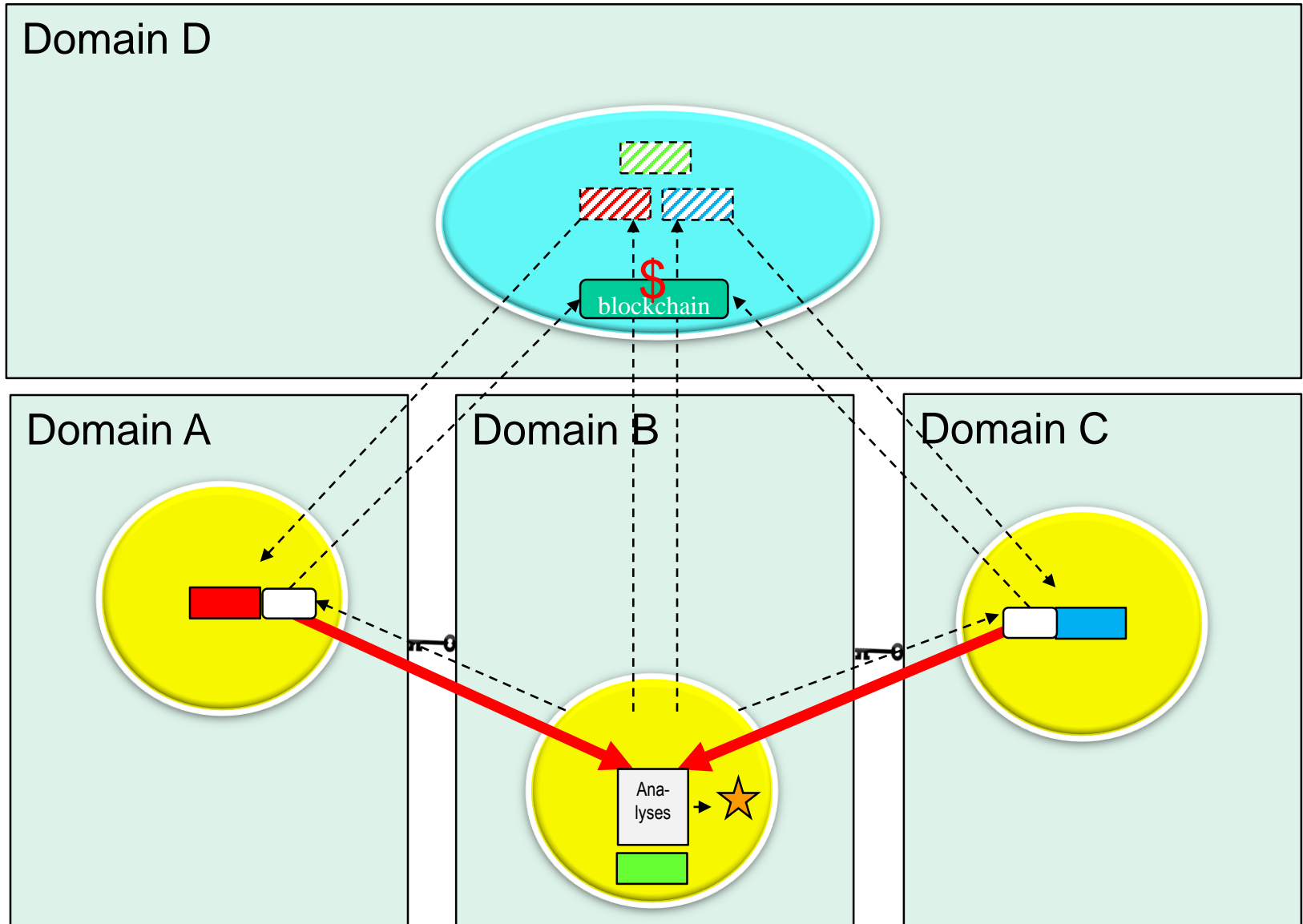
Inder Monga, Bas van Oudenaarde, Satish Raghunath, Phil Wang - FGCS Oct 2006 pg 901-907.

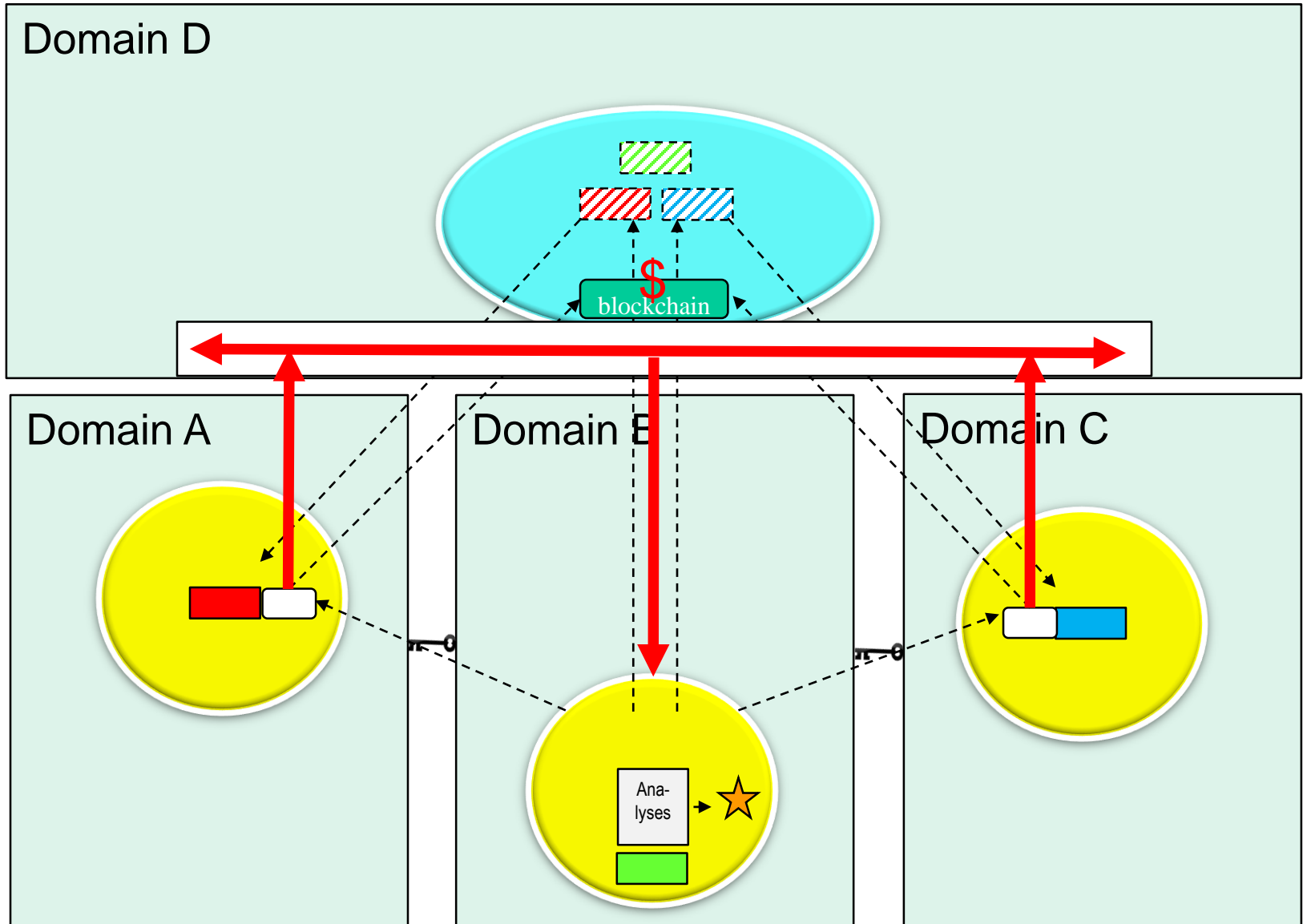
Sharing using “unlimited” bandwidth.



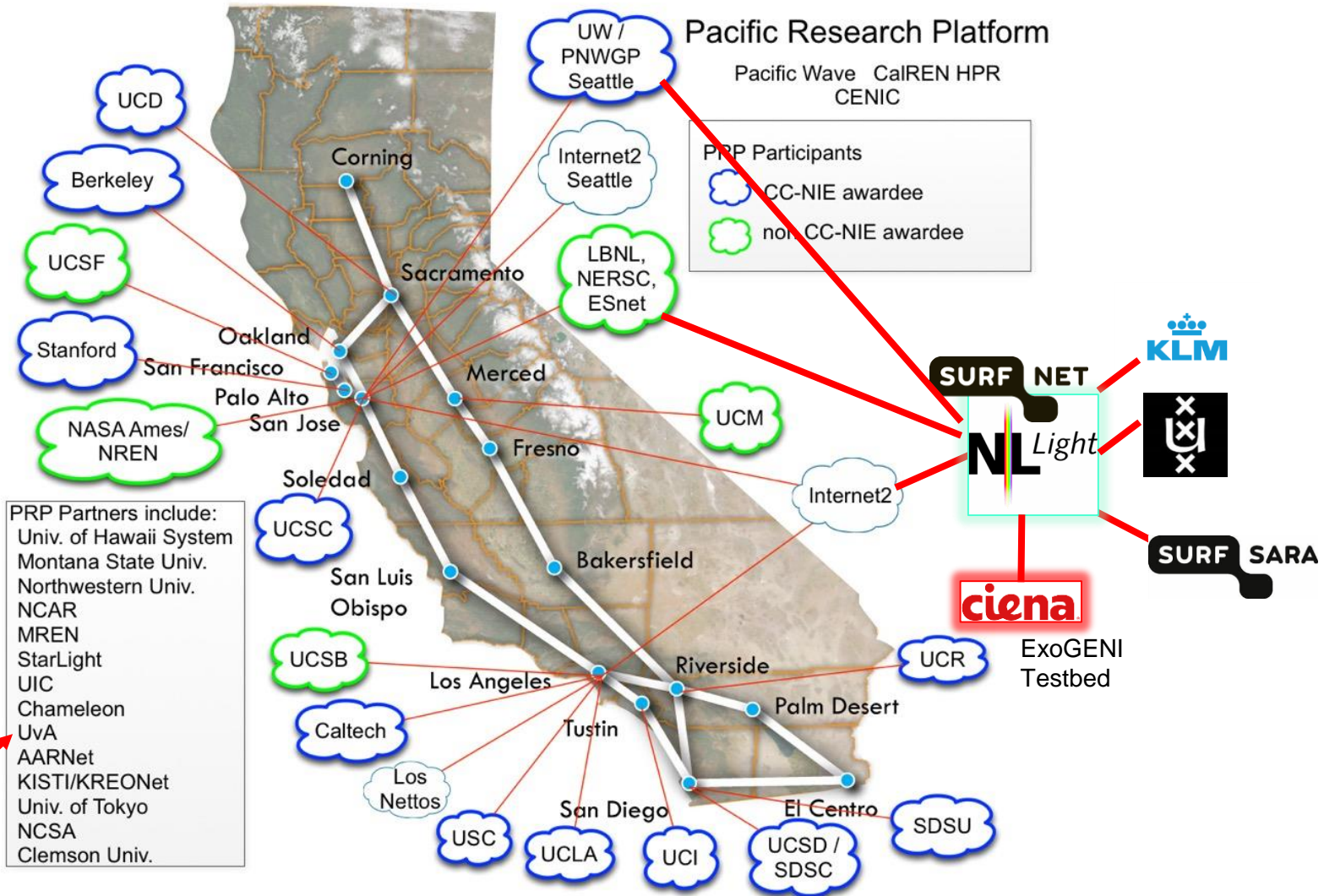








NSF Pacific Research Platform: researching Big Data Sharing infrastructures using 100 Gb/s



Note: this diagram represents a subset of sites and connections.

v1.16 – 20151019





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SARNET project – Secure Autonomous Response NETworks



SARNET Alliance project: Understanding the creation of an alliance sharing Big Data Assets in cybersecurity context.



SARNET partners



Providing future Internet connectivity with research partners.

Cees de Laat, Tom van Engers, Ameneh Deljoo, Ralph Koning, Paola Grosse (UvA).

Robert Meijer, Frank Fransen (TNO)

Rodney Wilson, Marc Lyonais (Cieno)

Erik Huizer, Gerben van Malenstijn (SURFnet)

Larry Smarr, Tom Defanti (UCSD / PRP project).

