

Services reliability at CDS

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on behalf of CDS team



□ Context

- CDS hosts several services used daily by astronomers
 - Sesame
 - SIMBAD
 - VizieR
- Some are critical (name resolver) and considered as a commodity
- Expected availability: 24/7


□ Monitoring tools

- Low-level: NAGIOS probes
 - network health
 - host resources (CPU load, disk usage)
 - computer room temperature
 - ...
- High-level (functional): GLU Supervisor
 - services health dashboard
 - checks both
 - is the service running ?
 - is it returning expected output ?

Glu Supervisor
Date du dernier test complet : 30-Oct-2015 01:20

ACDS/XMM	Aladin	Annotations	Biblio CDS
CDS http servers	Climatisation	Clones locaux	Dictionary of nom.
GLU	MocServer	Portail CDS	Sesame
Simbad	VizieR	WebService	XMatch

Relancer un test global manuellement =>



Pour quelques explications techniques, cliquer [ici](#)

□ CDS services availability

- Over last 365 days:
 - SIMBAD @ CDS: 99.4%
 - VizieR @CDS: 99.3%

Reminder:

90% availability: 36.5 days downtime per year

99% 3.65 days

99.9% 9 hours

99.99% 52 minutes

99.999% 5 minutes

□ Mirrors

- Sesame
 - main service @CDS
 - one mirror @CfA
- SIMBAD
 - main site @CDS
 - one mirror @CfA
- VizieR
 - main site @CDS
 - several mirrors: CfA, Hawaii, Cambridge (UK), India, South Africa, Russia, Japan

□ Taking advantage of mirrors

- Why?
 - 2 **independent** servers, each with 1% downtime (99% availability)
 - Probability that 2 servers are down at the same time: 0.01% (99.99% availability !!)
- At client level
 - need to know beforehand existence of mirrors
 - *eg:* in astropy, **name_resolve** queries Sesame CfA mirror if main site times out
 - query registry to discover mirrors (mirrors of CDS services currently not described in registry)

☐ Failures happen



VO client

□ Failures happen



VO client

<http://vizier.u-strasbg.fr/.../cs?...>



□ Failures happen



VO client

<http://vizier.u-strasbg.fr/.../cs?...>



@CDS

□ Failures happen



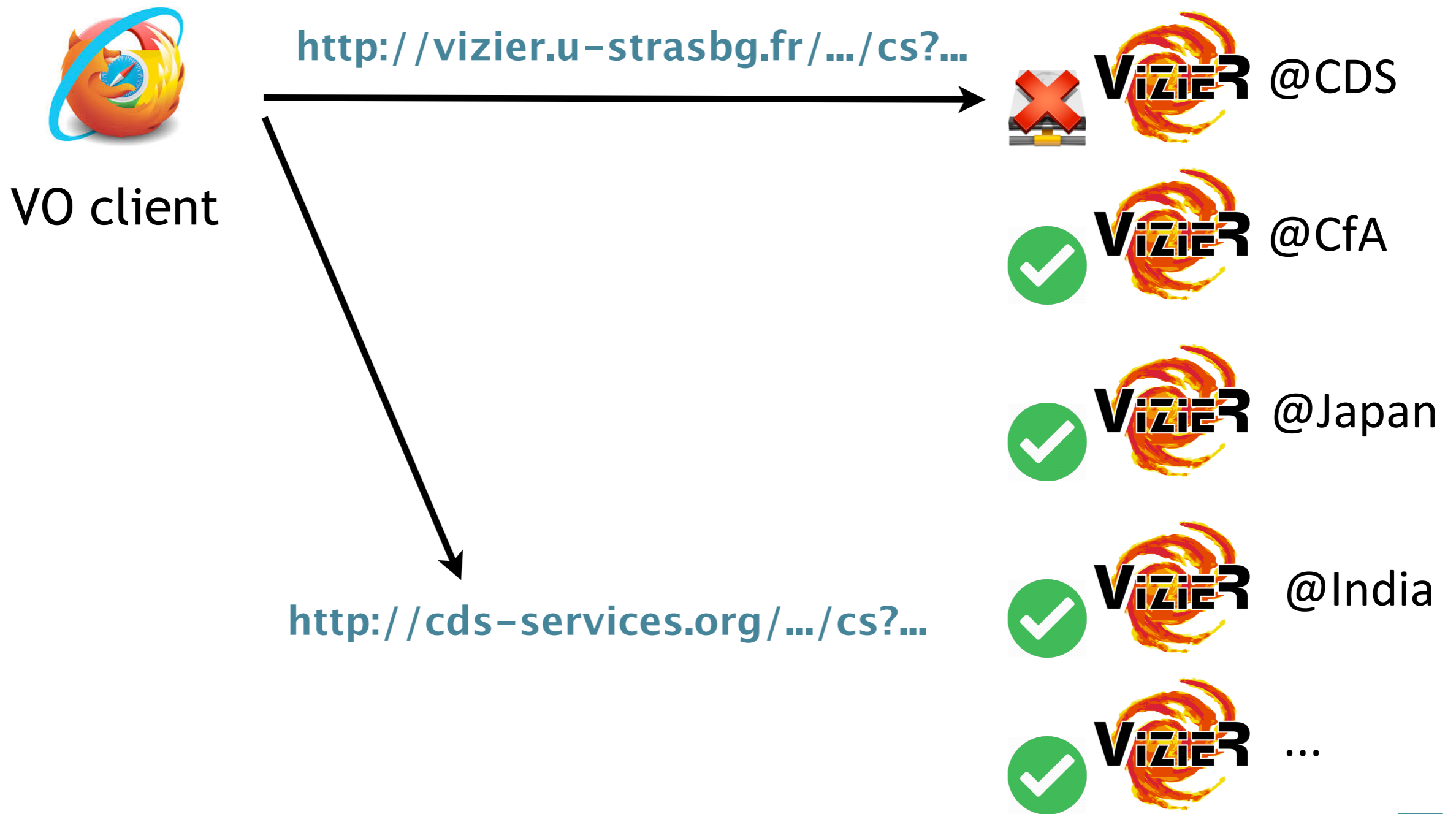
VO client

<http://vizier.u-strasbg.fr/.../cs?...>

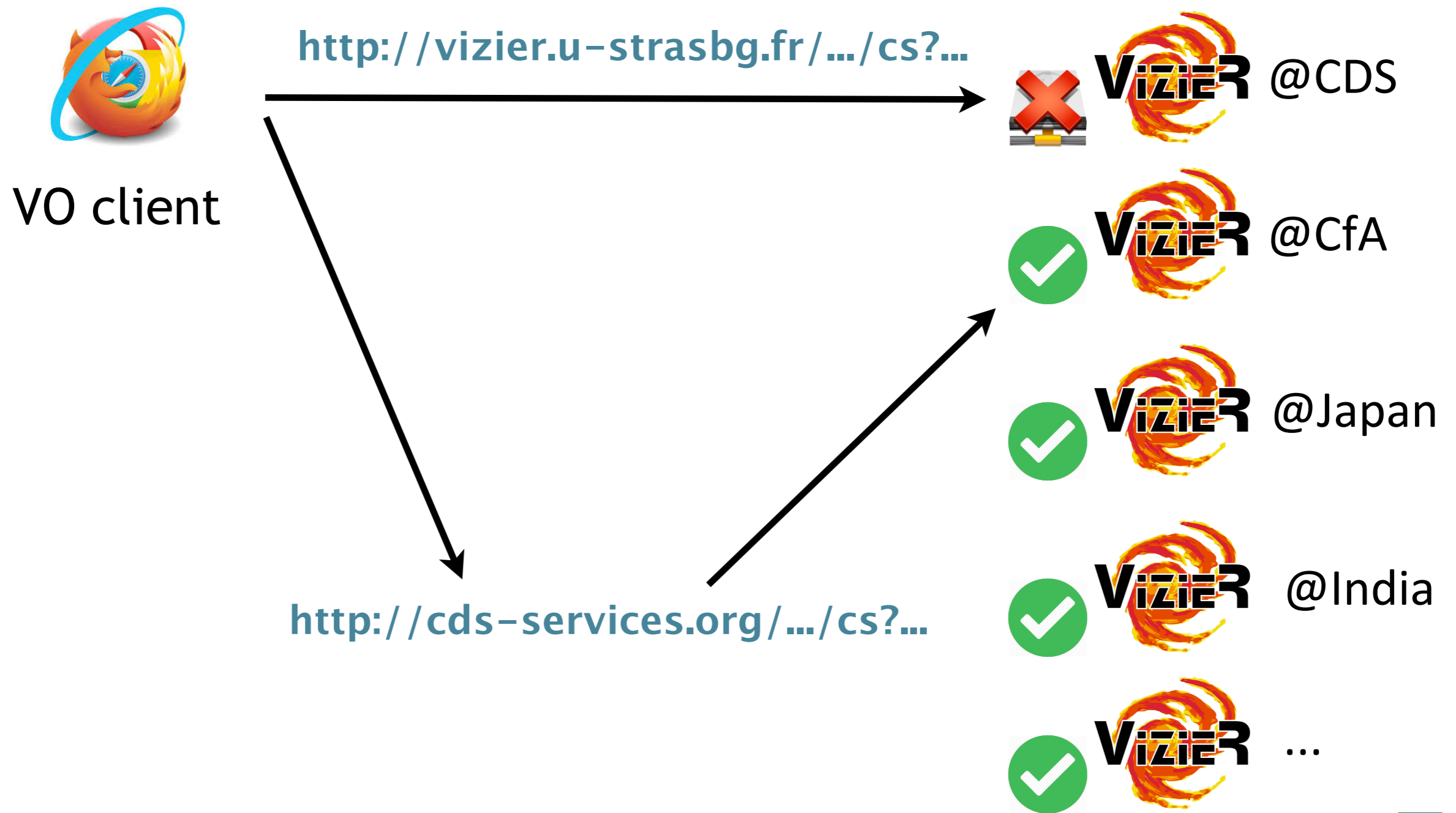


-  **VIZIER** @CDS
-  **VIZIER** @CfA
-  **VIZIER** @Japan
-  **VIZIER** @India
-  **VIZIER** ...

□ Failures happen



□ Failures happen



□ Open questions

- How do you mitigate single point of failures ?
design for high availability ?
 - redundancy, load balancers, DNS setup (RR failover), ... ?
 - is it worth the additional complexity ?
 - can the Cloud help ?
- Should mirrors be described in the IVOA registry ?
 - or should we handle them at another level ?