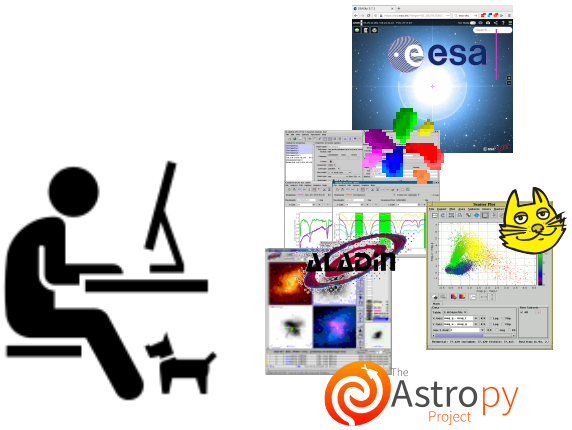
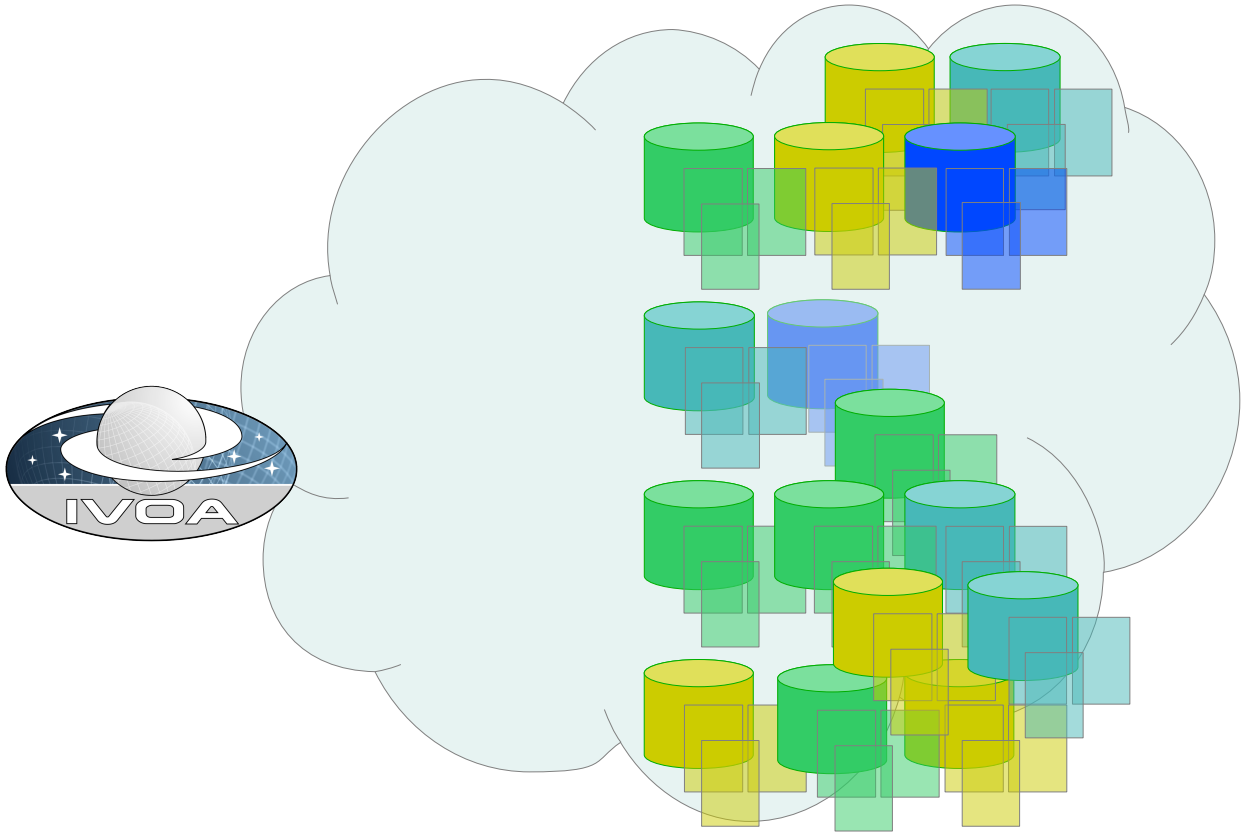
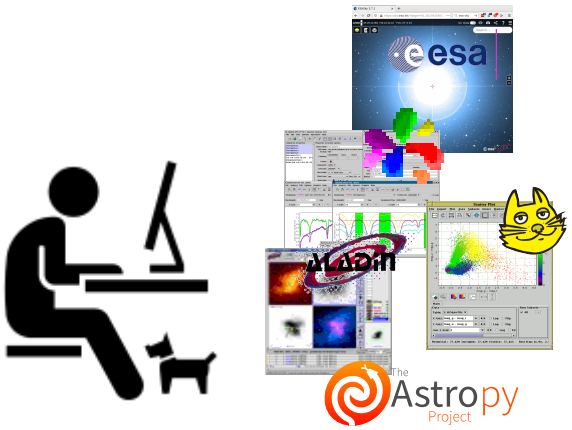


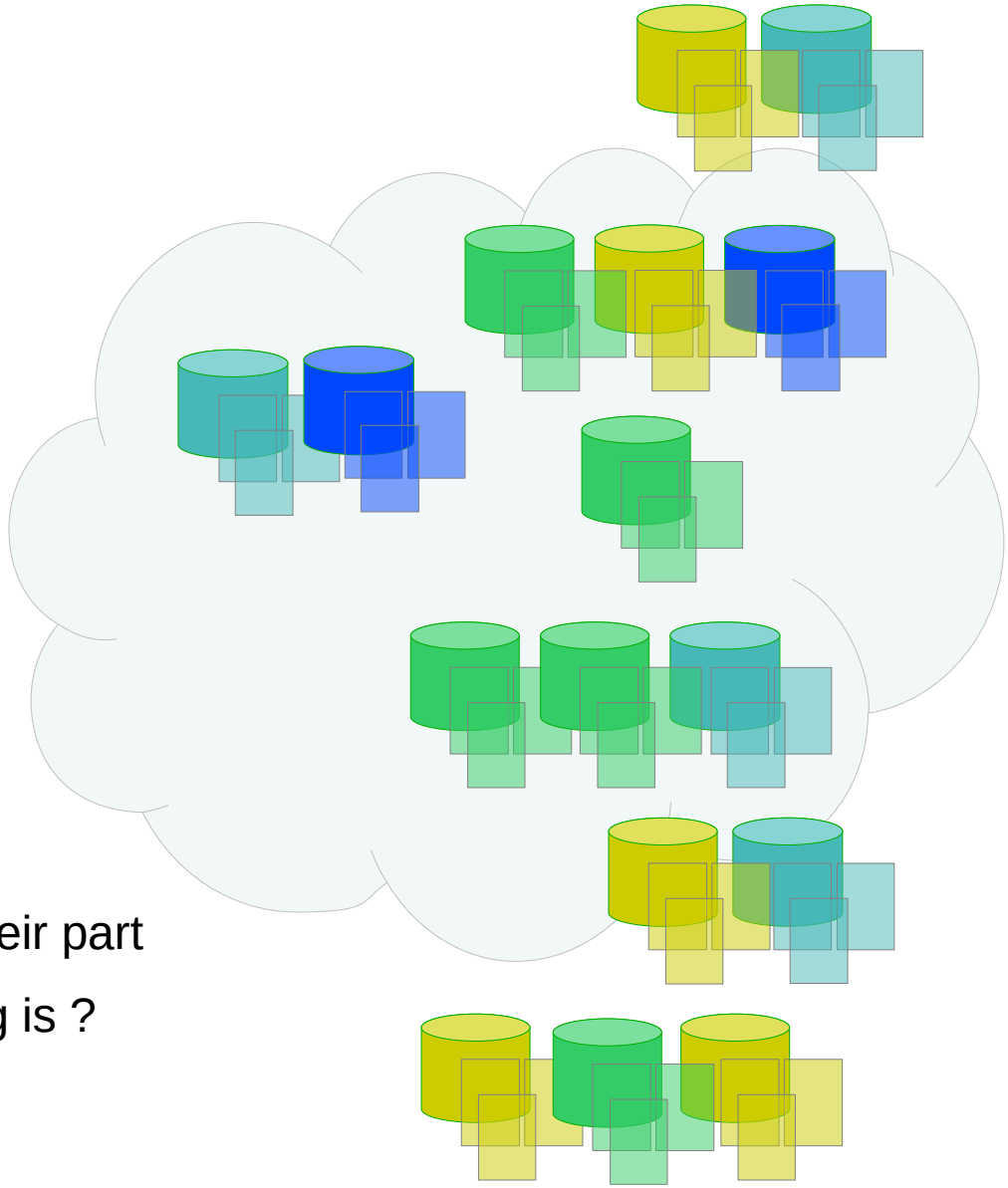


The Virtual Observatory

Data from all over the world …. in the cloud

D.Morris
Institute for Astronomy,
Edinburgh University

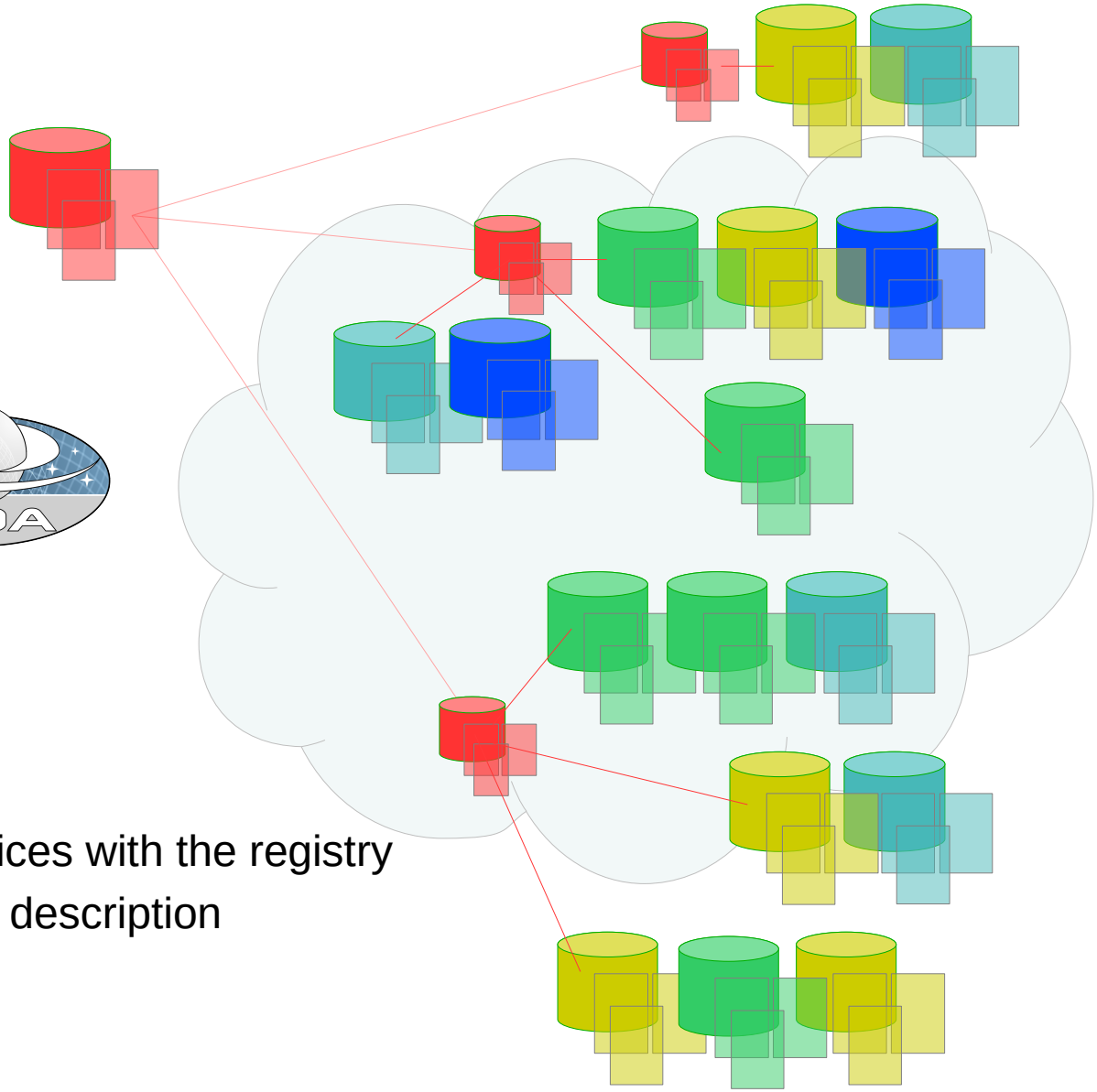




Lots of individual services each playing their part

But … how do you know where everything is ?

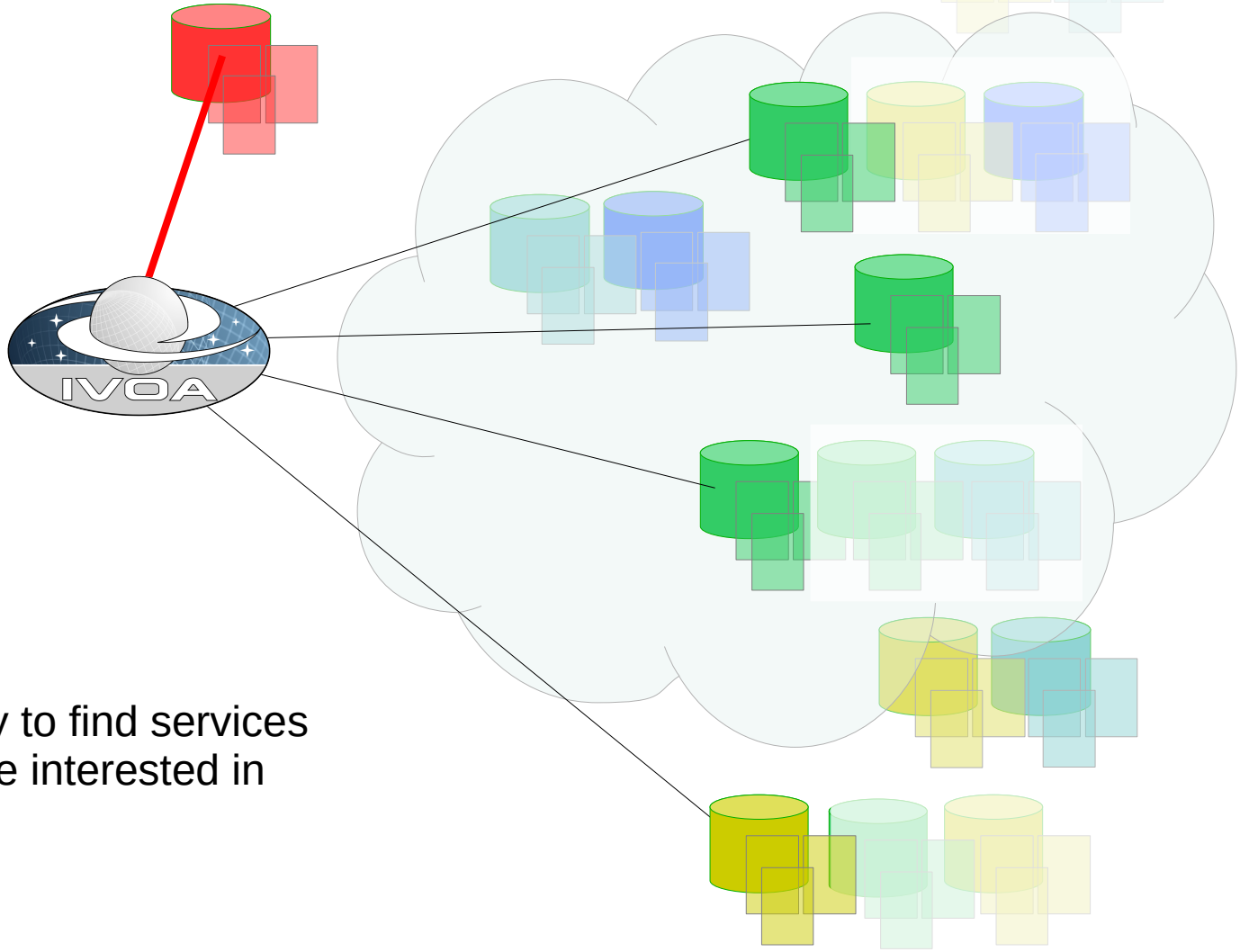
D.Morris
Institute for Astronomy,
Edinburgh University



Data providers register their services with the registry

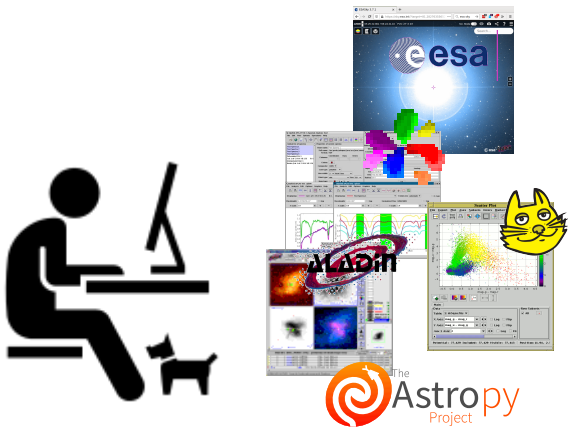
Registration metadata includes a description of the data they provide

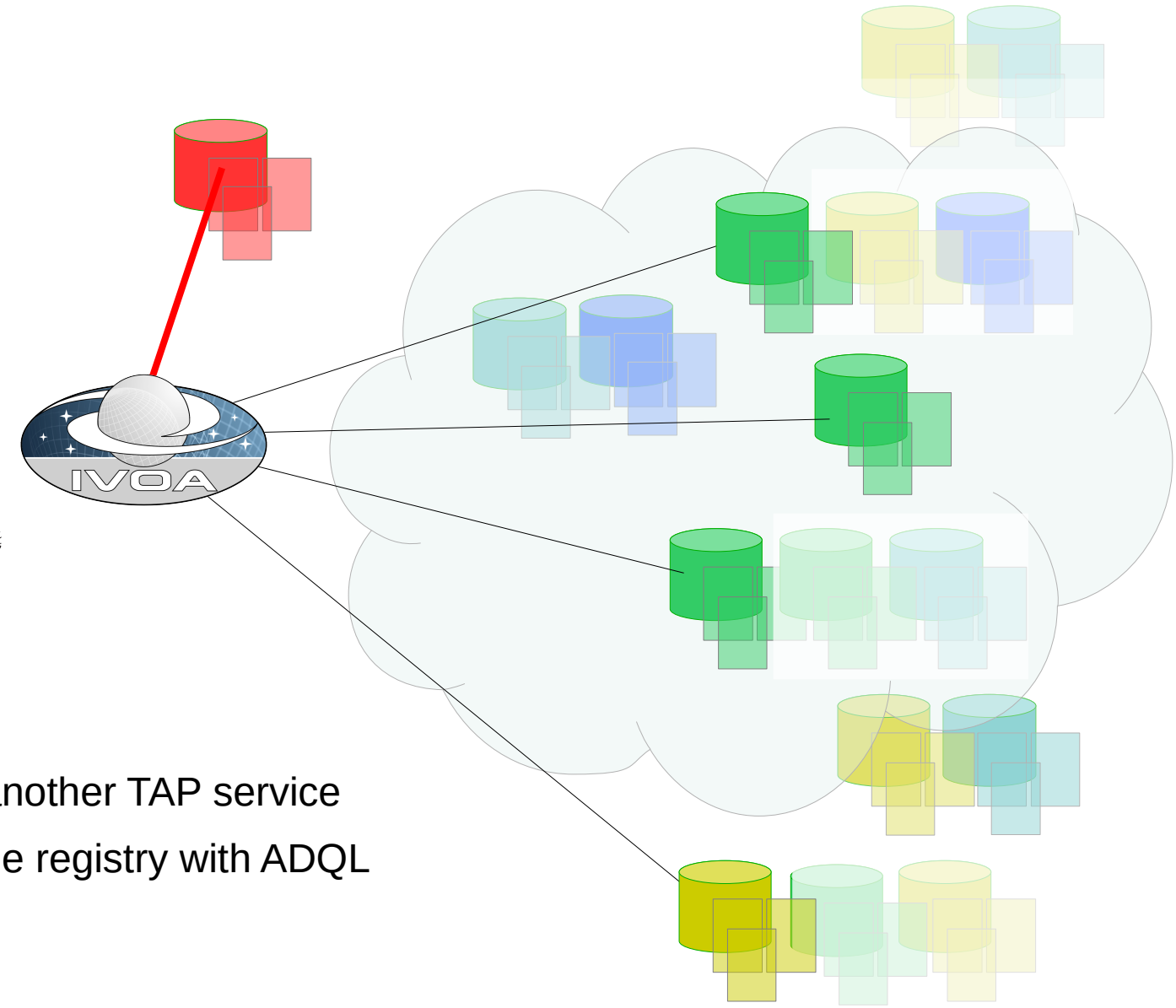
D.Morris
Institute for Astronomy,
Edinburgh University



Clients query the registry to find services that contain data they are interested in

D.Morris
Institute for Astronomy,
Edinburgh University





Registry is in fact, just another TAP service

It is possible to query the registry with ADQL
(if you really want to)

D.Morris
Institute for Astronomy,
Edinburgh University

D.Morris
Institute for Astronomy,
Edinburgh University

Introduction to the VO
ADASS2021
Oct 2021

Unified Content Descriptors (UCD)

Different data providers have a different table structures

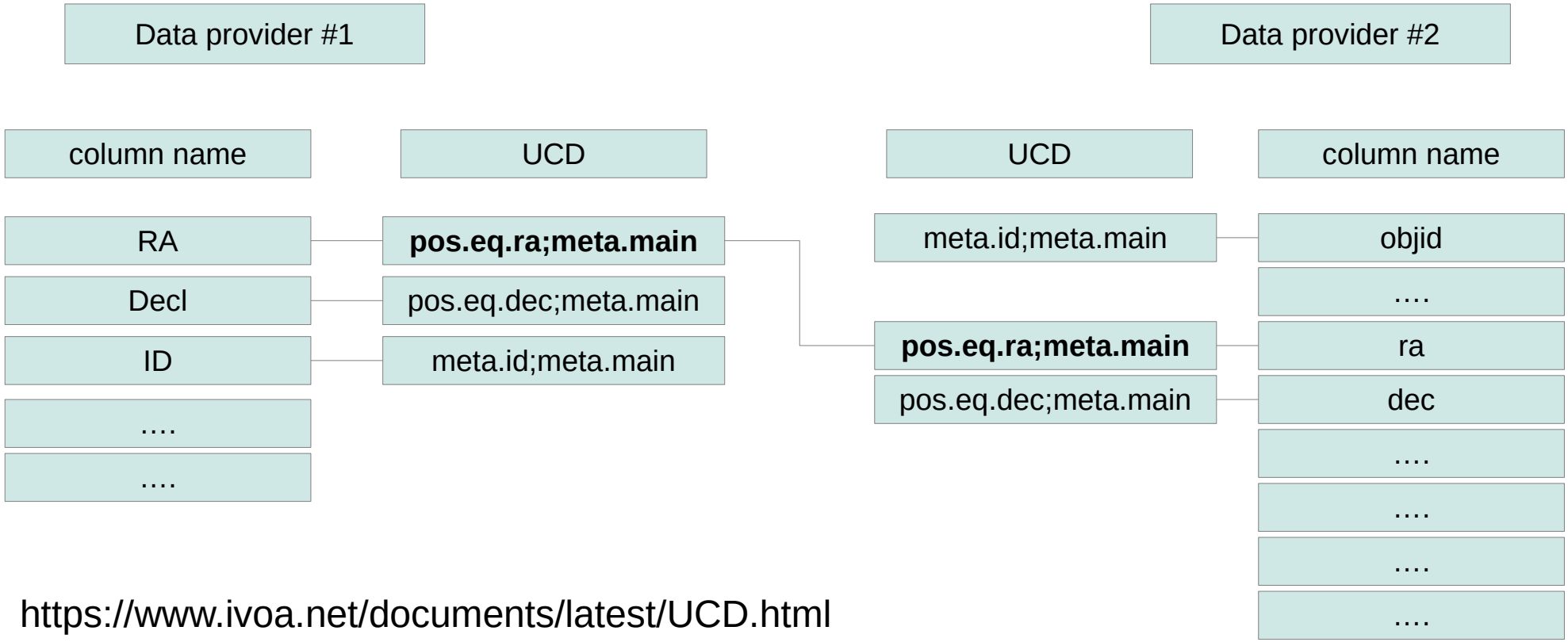
Data provider #1
column name
RA
Decl
ID
….
….

Data provider #2
column name
objid
….
ra
dec
….
….
….
….

D.Morris
Institute for Astronomy,
Edinburgh University

Unified Content Descriptors (UCD)

TAP schema and UCDs enable **clients** to figure out the mapping

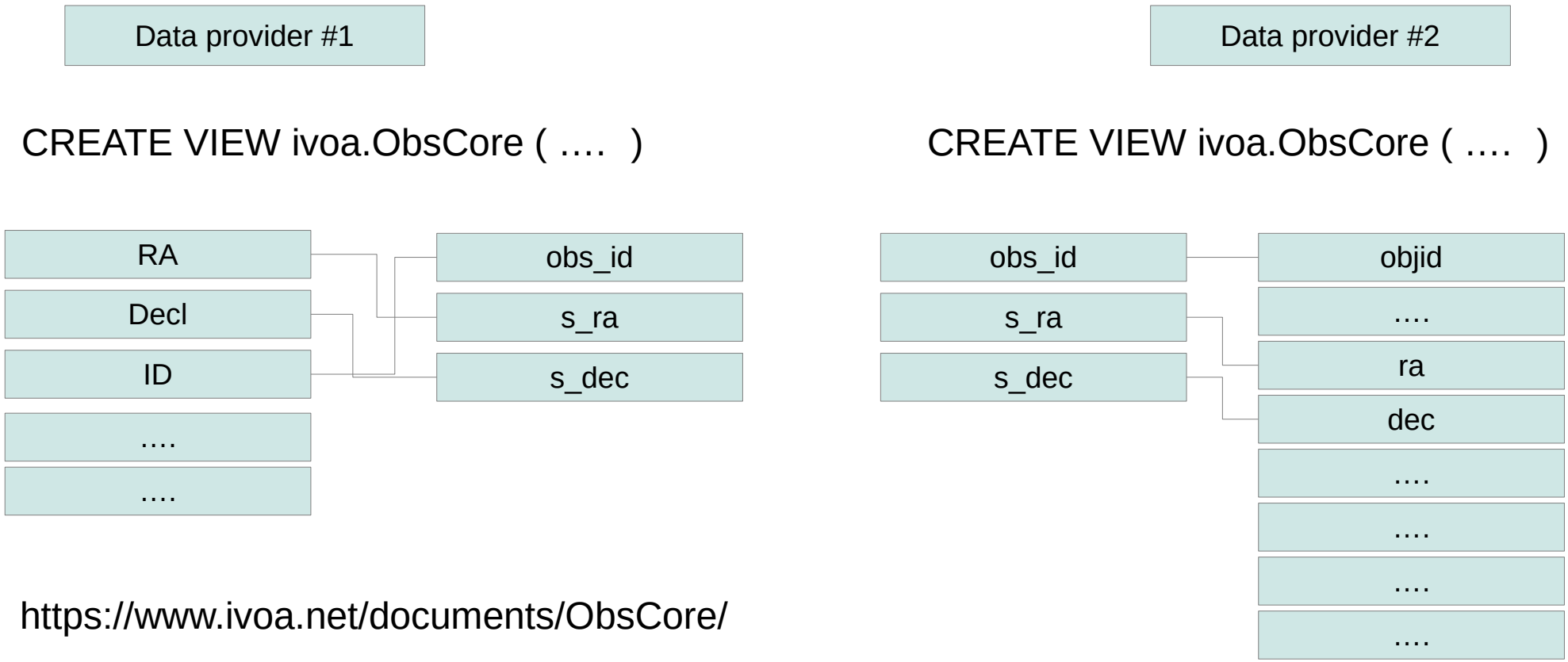


https://www.ivoa.net/documents/latest/UCD.html

D.Morris
Institute for Astronomy,
Edinburgh University

Observation Data Model Core Components

ObsCore adds a standard view to the data in each data provider

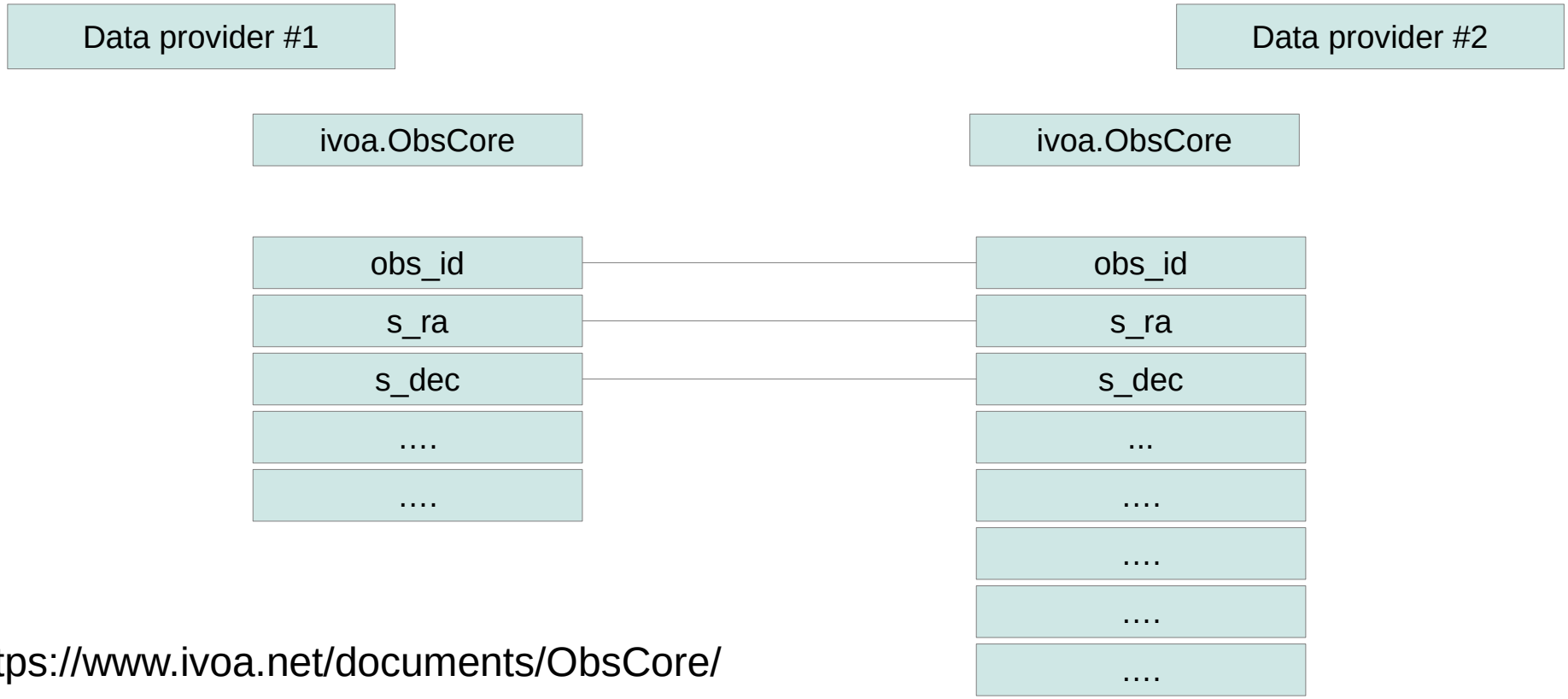


https://www.ivoa.net/documents/ObsCore/

D.Morris
Institute for Astronomy,
Edinburgh University

Observation Data Model Core Components

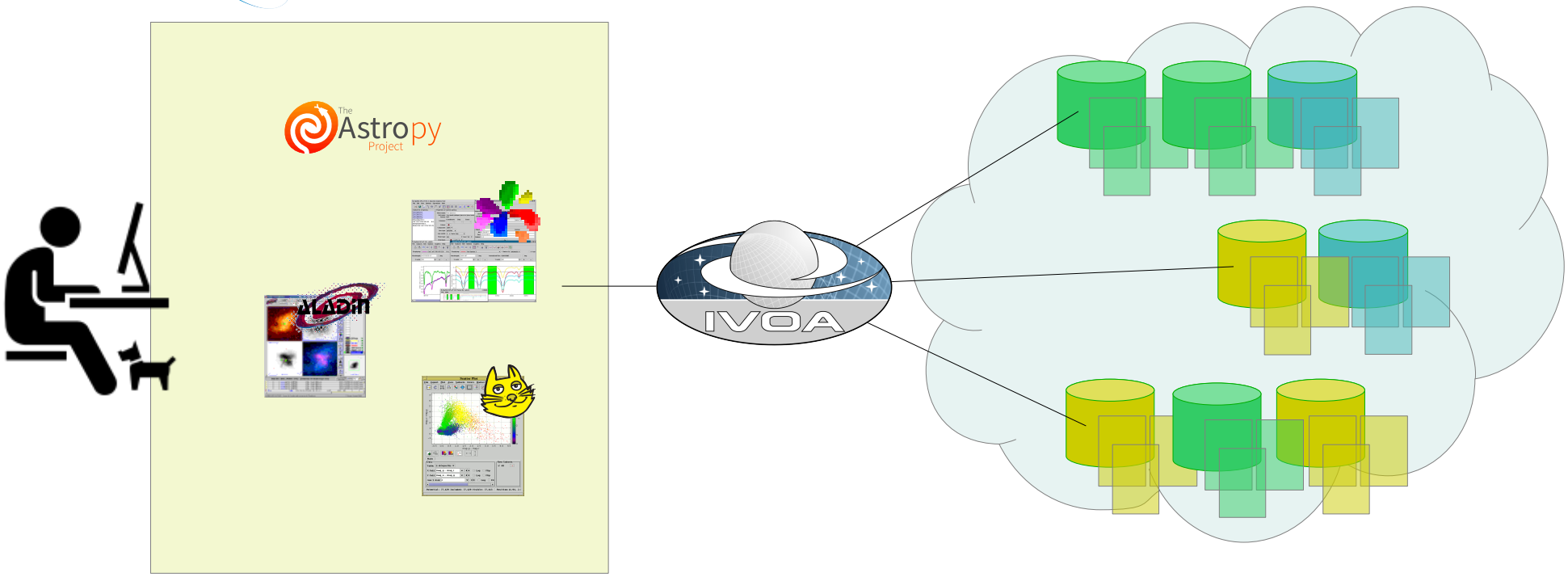
Now the public tables in **both** providers are the same



https://www.ivoa.net/documents/ObsCore/

D.Morris
Institute for Astronomy,
Edinburgh University

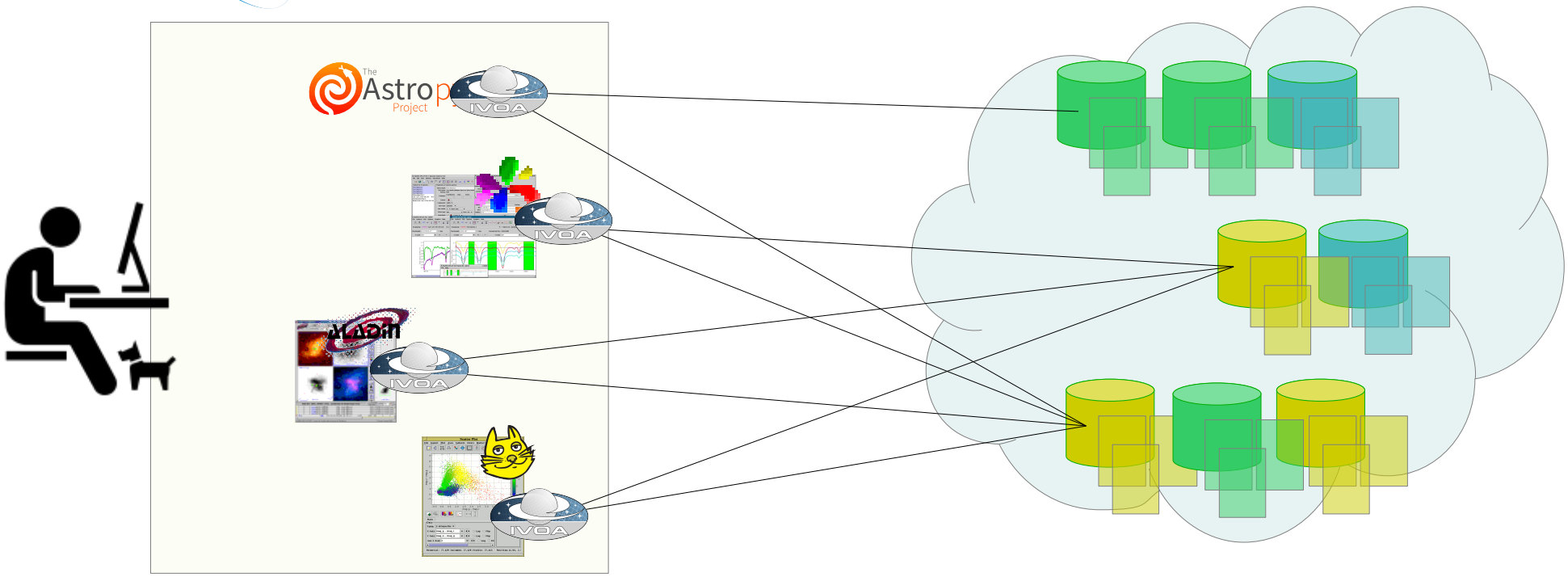
Introduction to the VO
ADASS2021
Oct 2021



The Virtual Observatory

All the data from the cloud …. available on your desktop

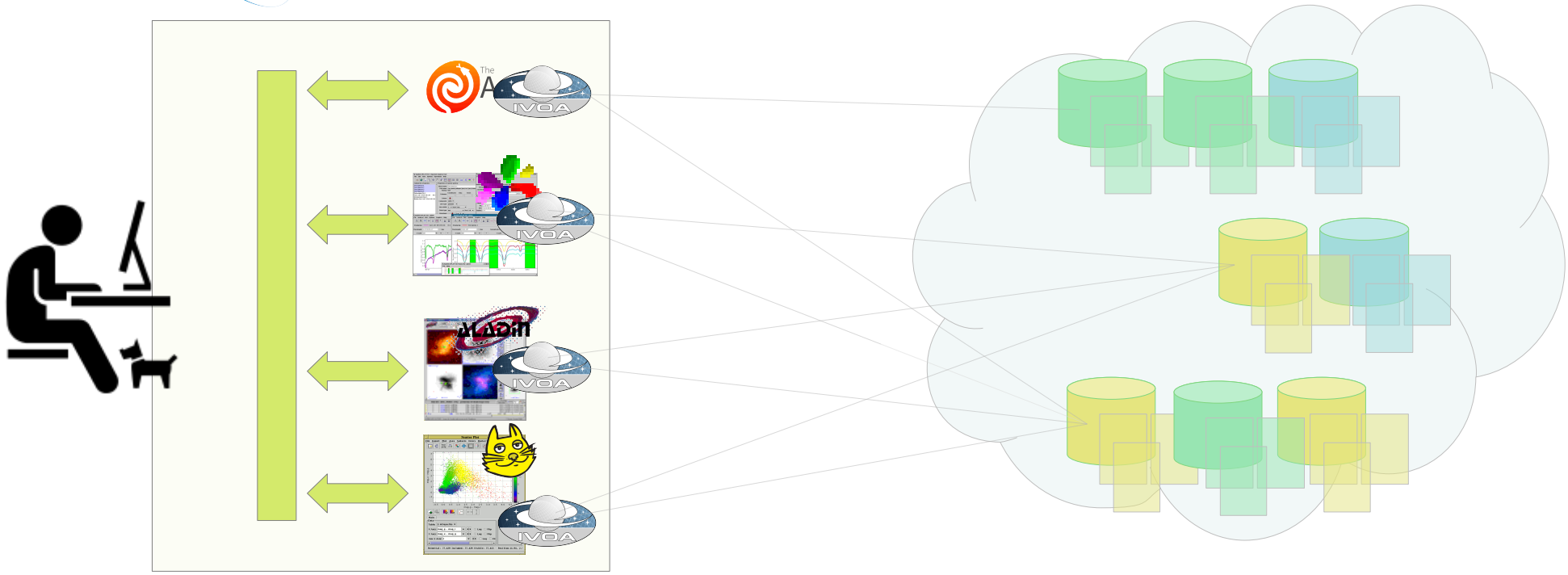
D.Morris
Institute for Astronomy,
Edinburgh University



All the data from the cloud …. to each desktop app

Each application maintains its own connection to the VO

D.Morris
Institute for Astronomy,
Edinburgh University



SAMP is a message bus within your local computer

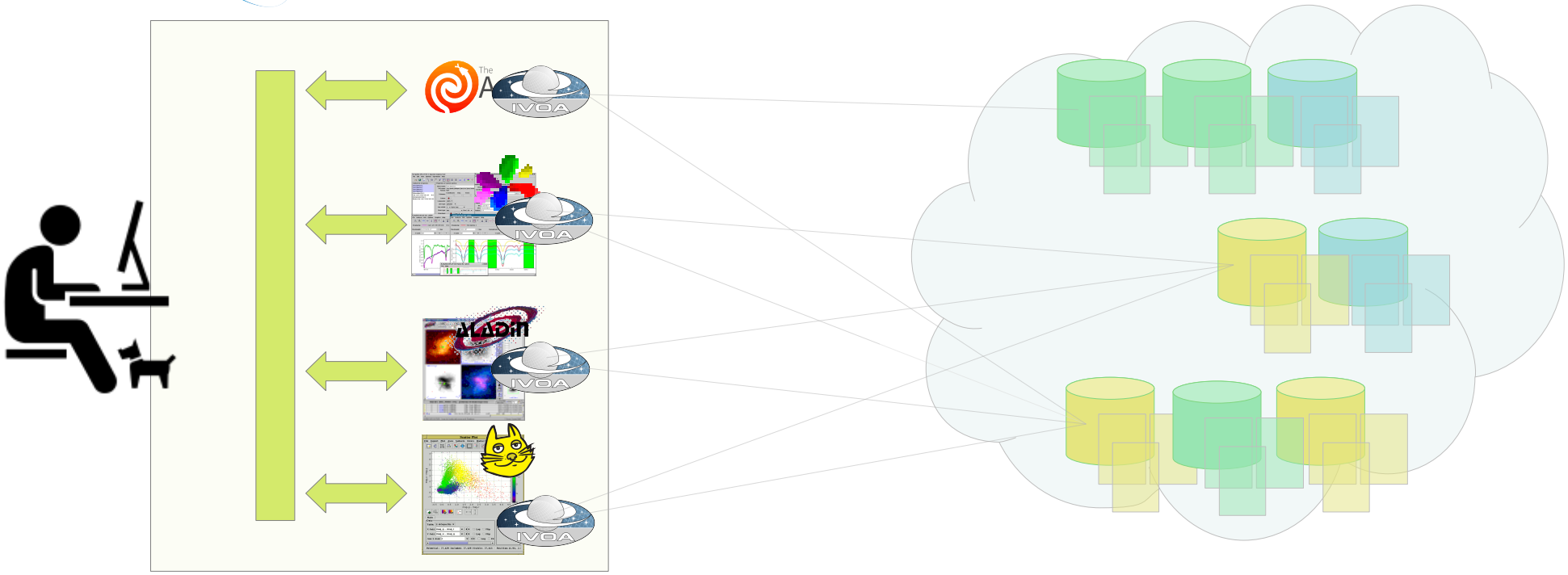
Applications can use SAMP to send messages to each other

table.load.votable <http://example.org/.../table.vot>

image.load.fits <http://example.org/.../image.fits>

coord.pointAt.sky <ra,dec>

D.Morris
Institute for Astronomy,
Edinburgh University



Messages can be sent to specific applications

Send to Aladin:

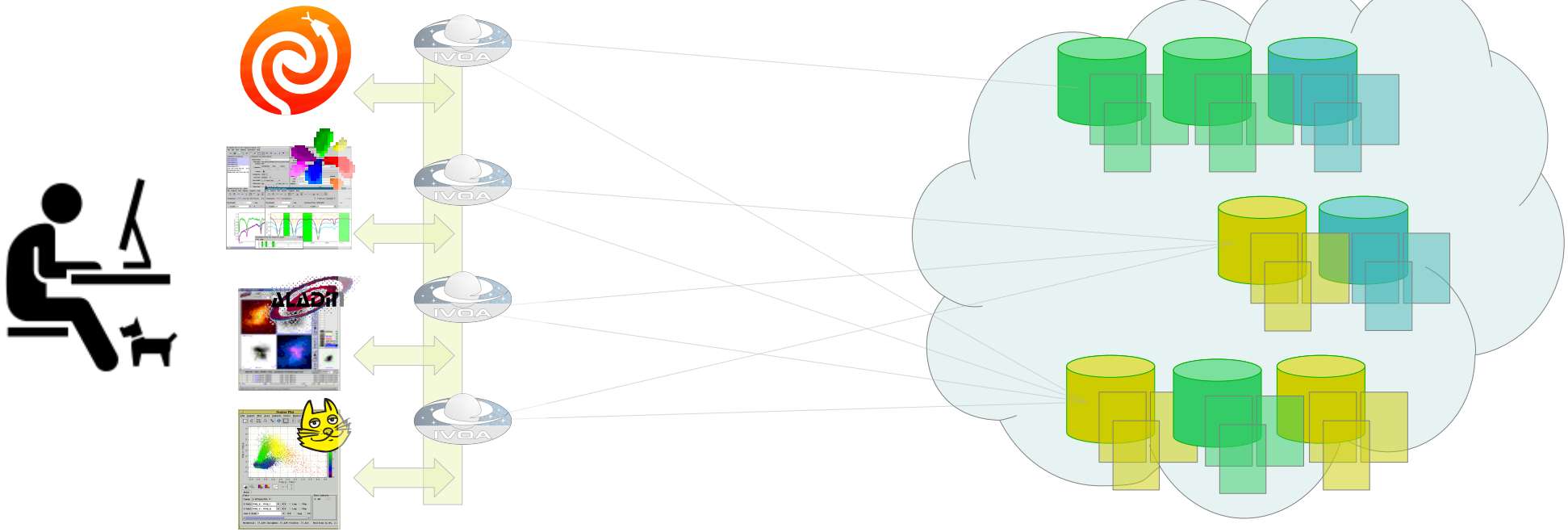
image.load.fits <http://example.org/.../image.fits>

Or broadcast to all listeners

Send to all:

coord.pointAt.sky <ra,dec>

D.Morris
Institute for Astronomy,
Edinburgh University



The Virtual Observatory

If we have done our job right, all the details disappear

All the data from the cloud …. available on your desktop

D.Morris
Institute for Astronomy,
Edinburgh University

D.Morris
Institute for Astronomy,
Edinburgh University

Introduction to the VO
ADASS2021
Oct 2021

Everyone invited to develop science use cases

Science based interest groups

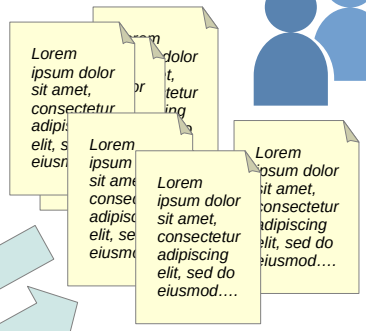
Scientific use cases

transients

time-series

IVOA working groups e.g. DataAccessLayer, Applications, Semantics

Working group email list



Everyone invited to discuss

New standards being developed

ObjVisSAP ObsLocTAP

TIMESYS Multi-order Coverage (MOC)

Hierarchical Progressive Surveys (HiPS)

Science priorities for the IVOA

Science platforms

Machine learning

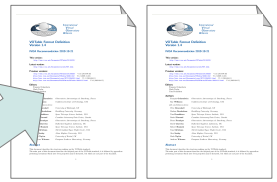
Multi-messenger astronomy

Science priorities committee

Scientists from IVOA members and major astronomy projects

Request For Comment (RFC) document

IVOA recommendation



Everyone invited to comment

Anyone can raise issues

GitHub

D.Morris
Institute for Astronomy,
Edinburgh University

Introduction to the VO
ADASS2021
Oct 2021