GEOTECHNICAL VIRTUAL DATA CENTER (GVDC)

PEER Annual Meeting
October 26th, 2012

Loren Turner
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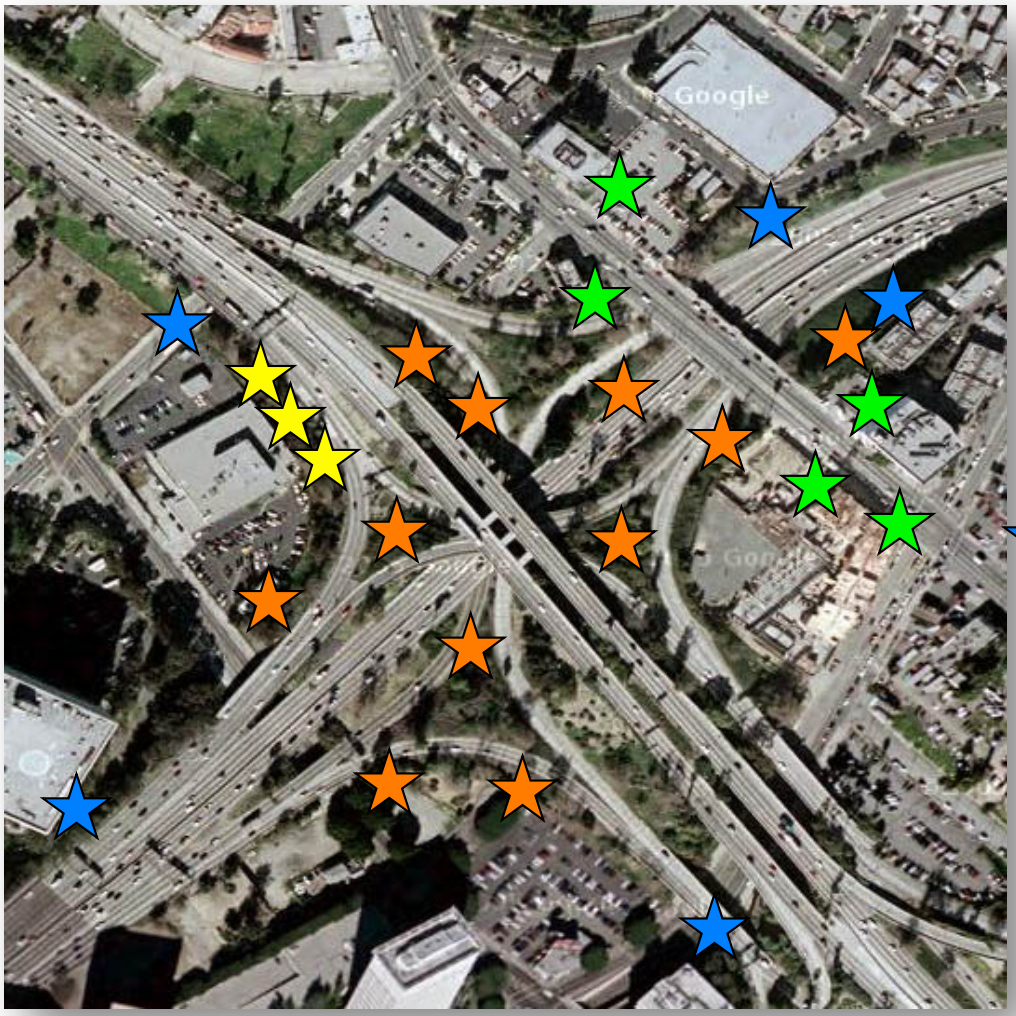
The dream: *data sharing*



Caltrans

PG&E

CALIFORNIA GEOLOGICAL SURVEY

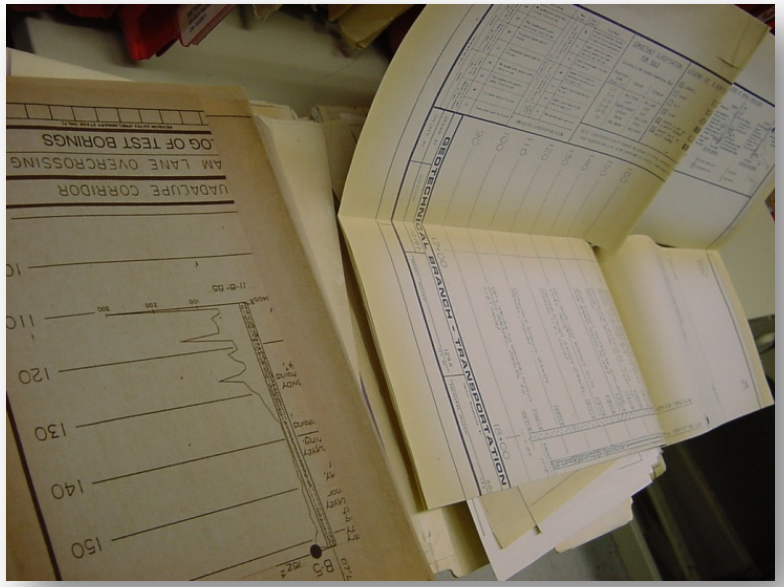
CALIFORNIA CONSERVATION

USGS

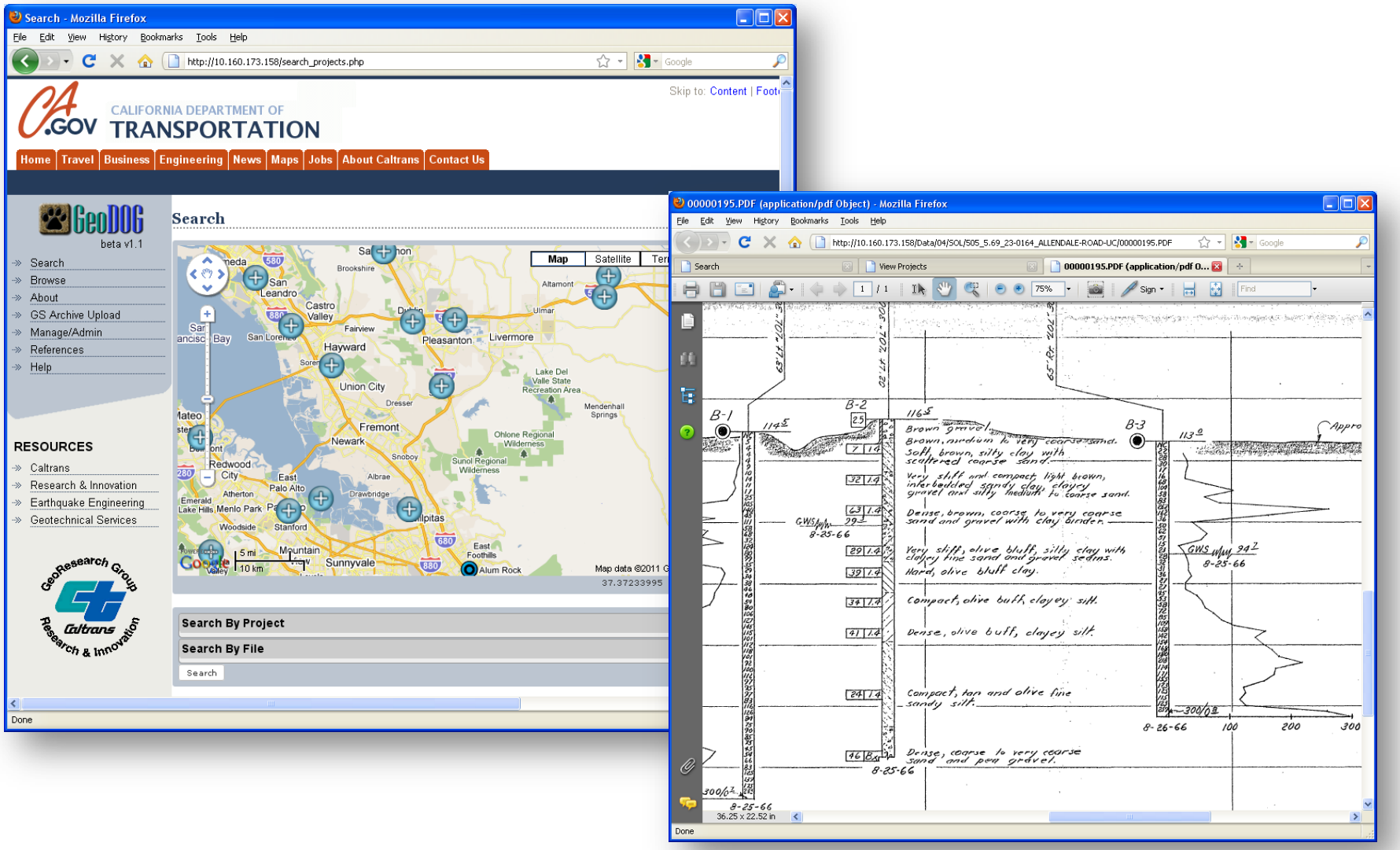
science for a changing world

The reality…

- A large paper legacy
- Difficult to access information
- Information scanned but no data structure

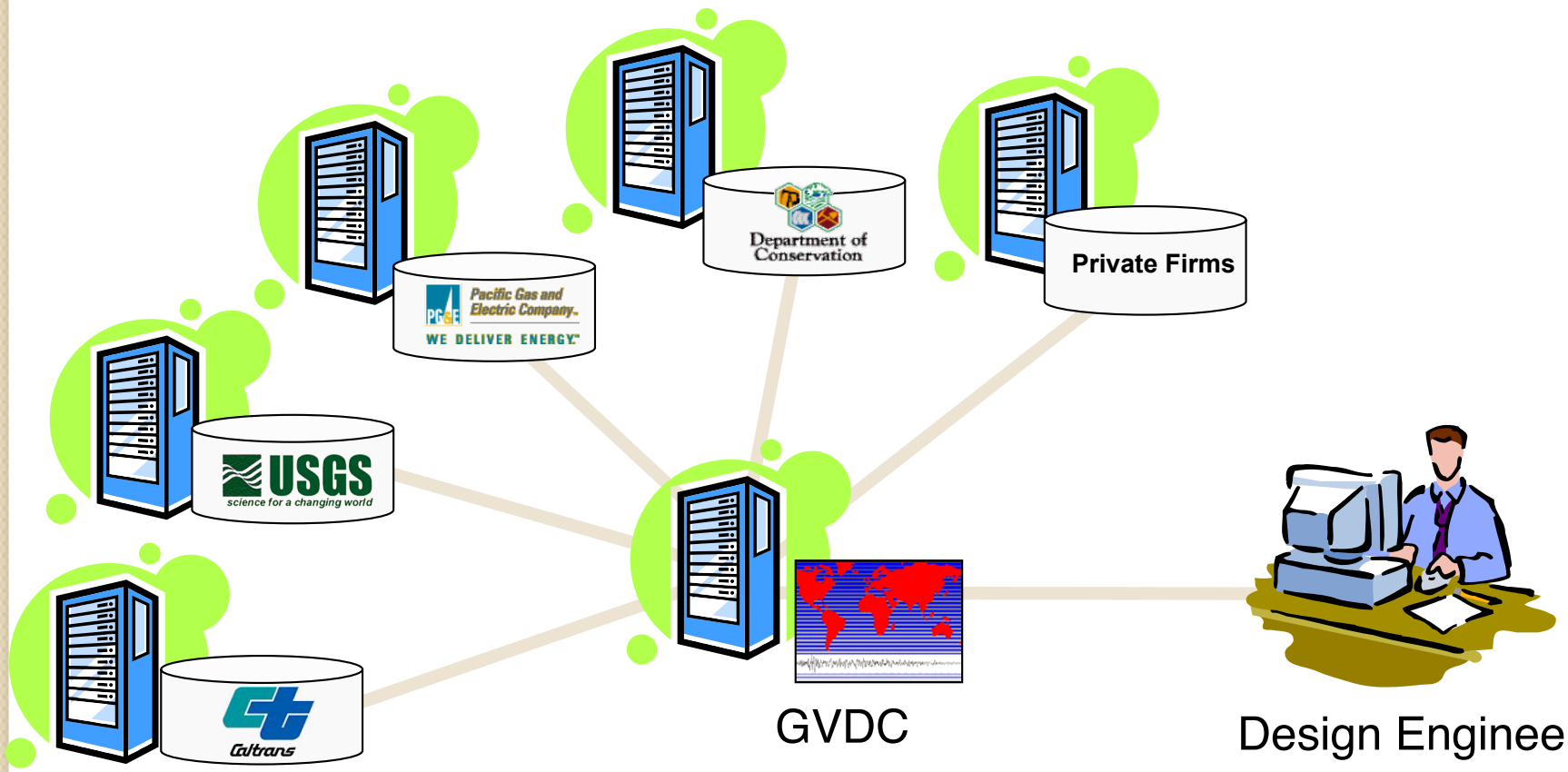


Managing the legacy: Caltrans GeoDOG

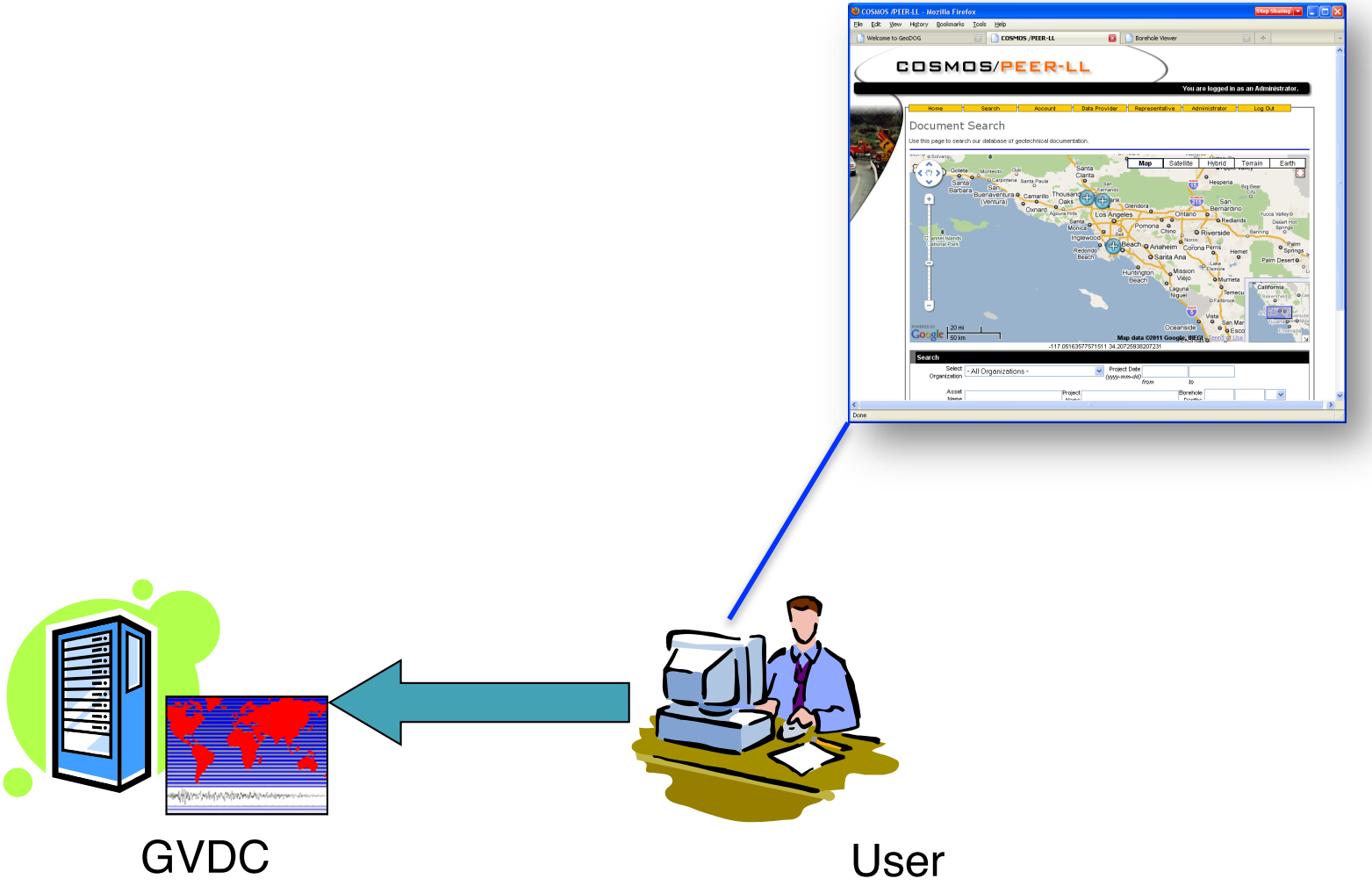


GVDC – Making sharing easy

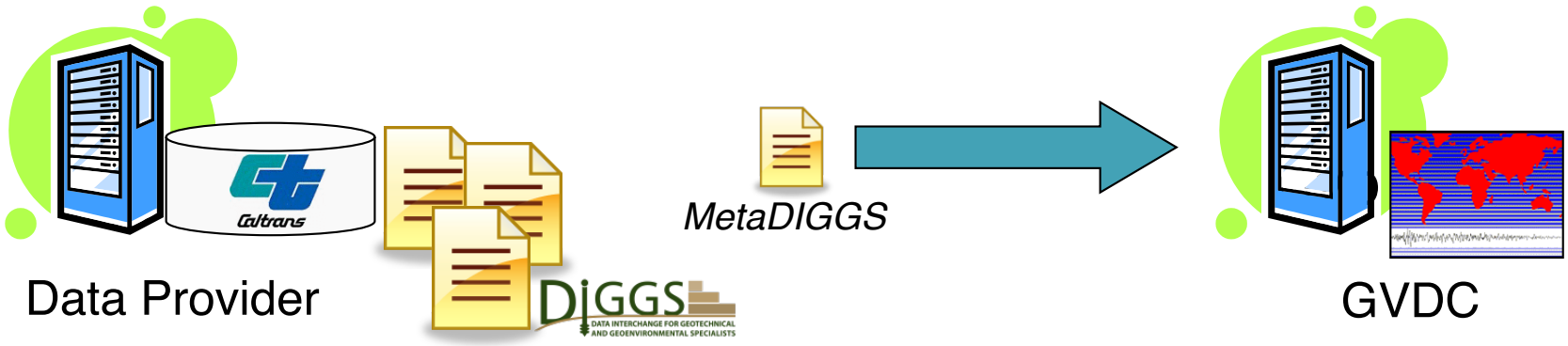
- The GVDC is a data "broker," not a data repository.
- Translation-based system using DIGGS.



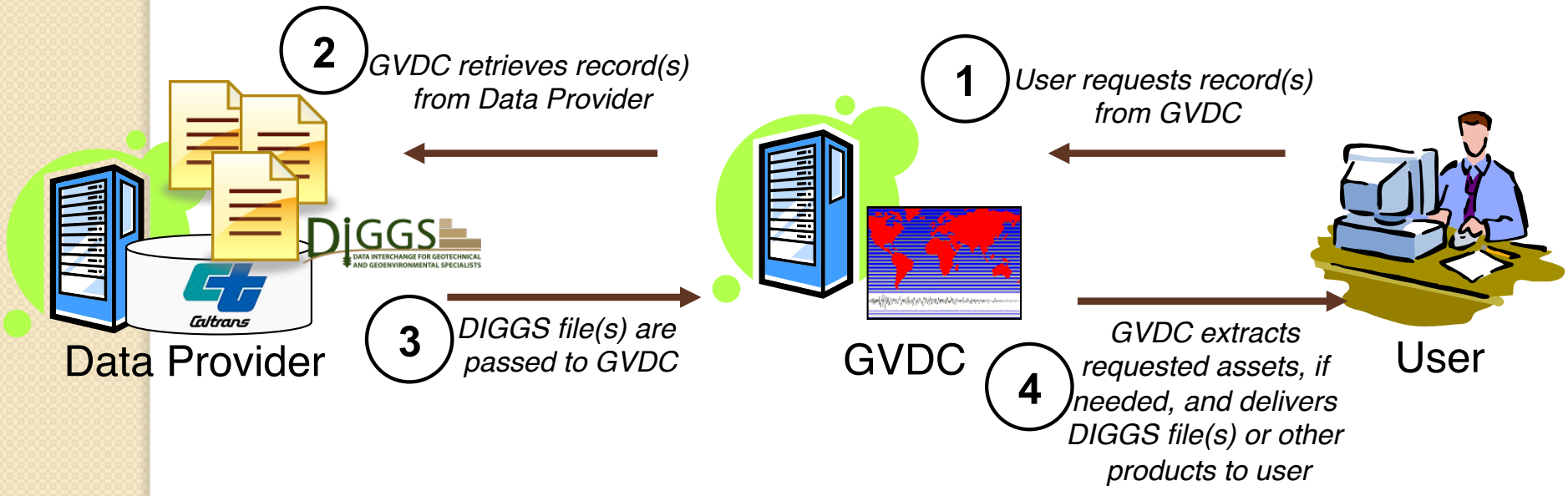
- A user goes the GVDC to search for data.



- The Data Provider generates a MetaDIGGS XML file to reflect their available data sets.
- The GVDC "harvests" the MetaDIGGS file and stores this information in it's database.



- The user requests to download and/or preview the record(s) returned by the search process.



DIGGS: Data Interchange for Geotechnical and Geoenvironmental Specialists

- A standard designed to facilitate exchange of geotechnical and geoenvironmental data among a broad range of practitioners and researchers.
- XML-based and GML compliant.
- Fully extensible, software neutral, and non-commercial.
- DIGGS is *not* a software application or a database structure
- Merger of AGS, COSMOS, and UF/FDOT standards.
- Active participation by commercial software community (gINT, HoleBase, Equis, Dataforensics, Rockware, Earthsoft)
- www.diggsml.com

Supporters/Promoters of DIGGS

- The United States Federal Highways Administration
- The United Kingdom Highways Agency
- US Departments of Transportation (CA, CT, FL, GA, IN, KS, KY, MN, MO, NC, OH, TN)
- The United States Geological Survey
- The United States Army Corps of Engineers
- The United States Environmental Protection Agency
- CIRIA (the UK Construction Industry Research and Information Association)
- AGS (the UK Association of Geotechnical and Geoenvironmental Specialists)
- COSMOS (Consortium of Organizations for Strong-Motion Observation Systems)
- The University of Florida
- Commercial software community (gINT, HoleBase, Equis, Dataforensics)

GVDC History

1992	NSF/FHWA sponsor the *National Geotechnical Experiment Sites* (NGES) that publishes geotech research data and data standards.
1996	Caltrans/EPRI/NSF sponsor the *Resolution of Site Response in the Northridge Earthquake* (ROSRINE) project that pioneers web dissemination of geotechnical data thru USC.
1998	NSF sponsors USC Workshop that highlights growing need for geotechnical data management and exchange.
2001	PEER-LL Project 2L01 sponsors a workshop to assess user needs and build consensus to develop a Geotechnical Virtual Data Center (GVDC).
2002-04	PEER-LL Project 2L02 tasks COSMOS to develop a pilot GVDC that demonstrates the feasibility of the technology.
2004	COSMOS & FHWA co-sponsored workshop that set goal to integrate COSMOS, AGS, and UF(FHWA) data standards under what becomes 'DIGGS'.
2004-09	PEER-LL Project 2L03 tasks COSMOS to update GVDC to implement cosmosDIGGS schema, expand data types (geophysical logs & lab tests) and revise system architecture. http://peer.berkeley.edu/publications/peer_reports/reports_2009/web_PEER9108_STEPPetal.pdf
2005-12	Transportation Pooled Fund TPF-5(111) project initiated to develop DIGGS standard.
2009	TPF-5(111) stakeholders meet in Orlando to assess DIGGS v1.0 release, restructure project management, and establish new work plan toward public release of DIGGS v2.0.
2010-11	PEER-LL Project 2L04a tasks COSMOS to implement DIGGS v1.2 and complete beta version of production-level GVDC system.

Current Status

- GVDC is "operational" but is based on an earlier DIGGS standard
- Community is waiting on DIGGS 2.0
- DIGGS 2.0 is less hierarchical than previous versions
- ASCE GeoInstitute has taken "ownership" of DIGGS and has a project funded by OhioDOT to test DIGGS 2.0.
- Once DIGGS 2.0 is finalized in 2013, the "hope" is that software vendors will support the format. THIS IS CRITICAL!
- With the ability to create DIGGS files, all new geo data at Caltrans will be placed on a GVDC accessible server (in DIGGS format). CGS and USGS to follow suit. PEER to host GVDC.
- Caltrans will likely require all consultant work to be provided in DIGGS format.