Think
Geospatial Collective

First Meeting of

the National Coal Mining Geospatial Data Stewards

Presented by

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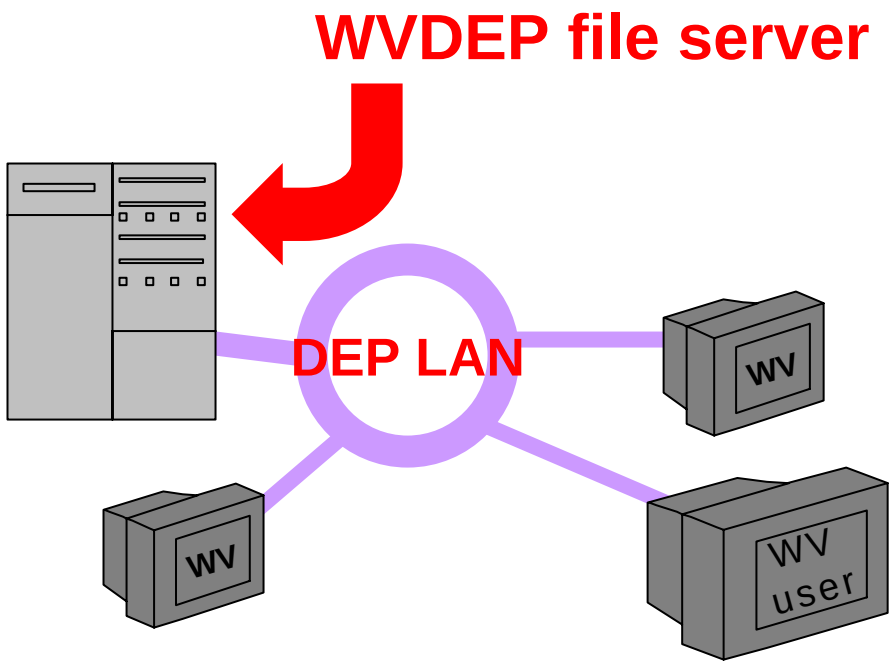
The problem ...

How can TIPS user organizations building national coal mining geospatial datasets work together more effectively?

To understand where we need to go we first look at where we came from →

In the beginning of TIPS

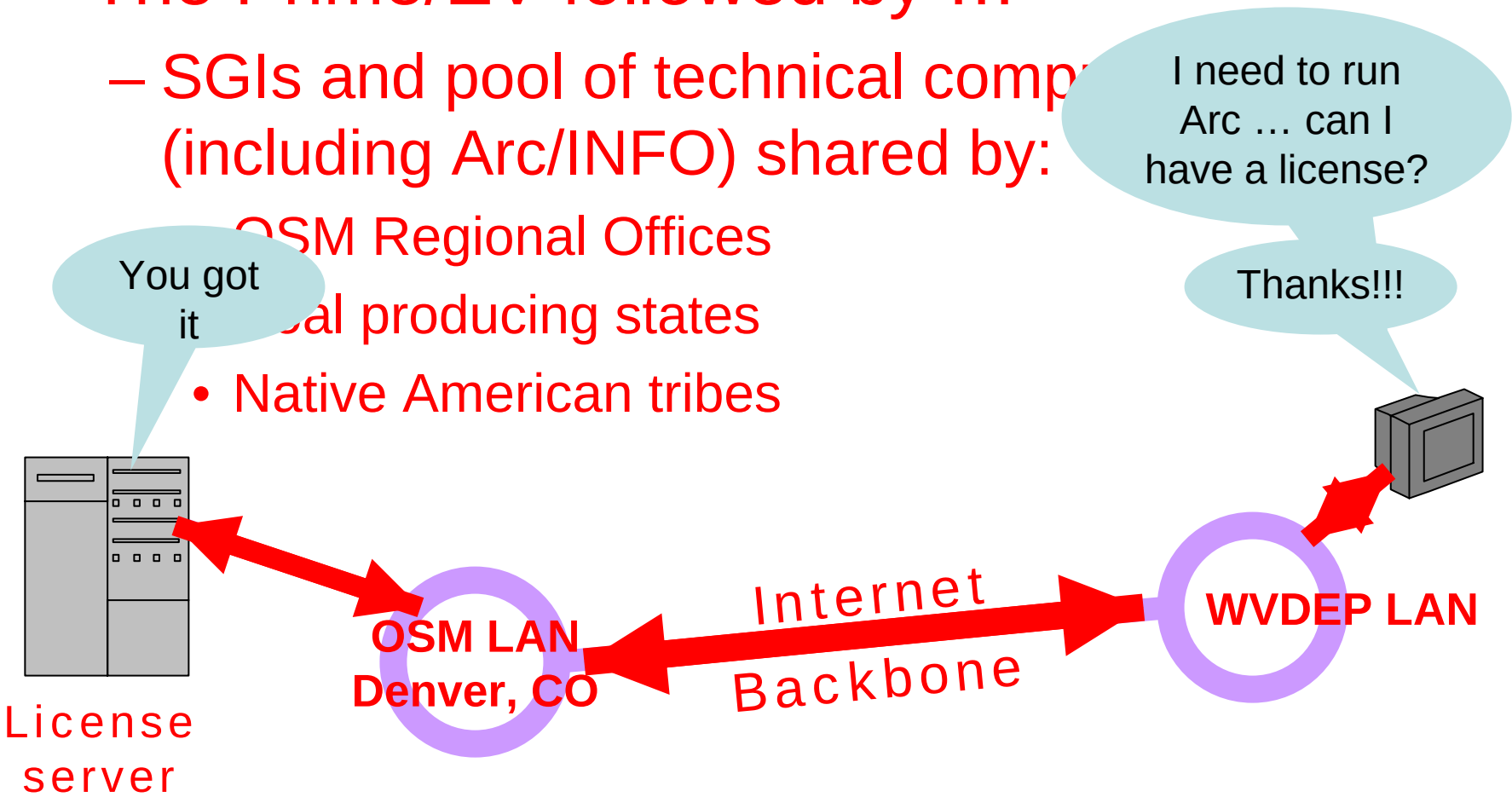
- A collective infrastructure was built but not a collective mindset …
- We dealt with mining data as discrete, site specific datasets
- Over time came individual file servers & isolated LANs



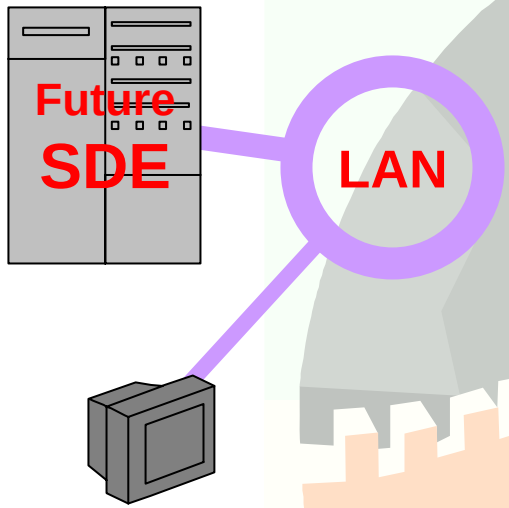
- Our needs soon outgrown that!

The 1st. steps toward a collective was more than a decade ago.

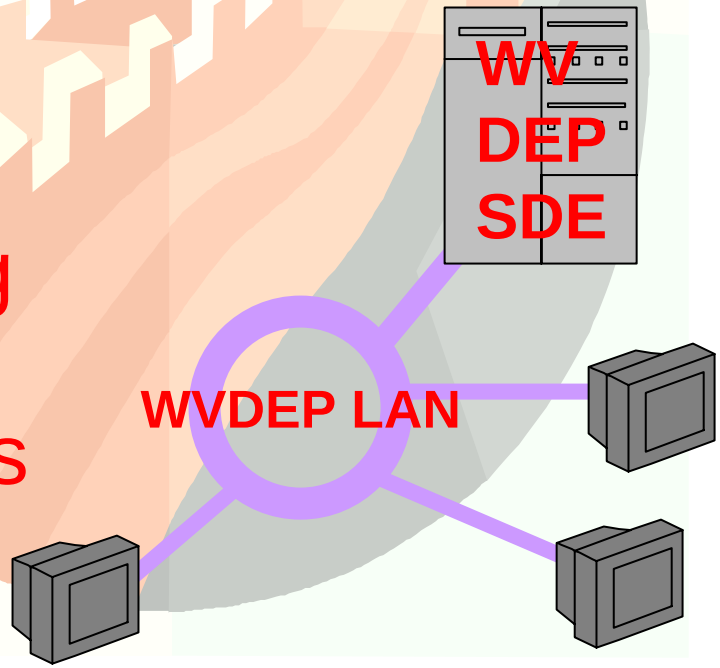
- The Prime/EV followed by …
  - SGIs and pool of technical comp (including Arc/INFO) shared by:
    - OSM Regional Offices
    - al producing states
    - Native American tribes

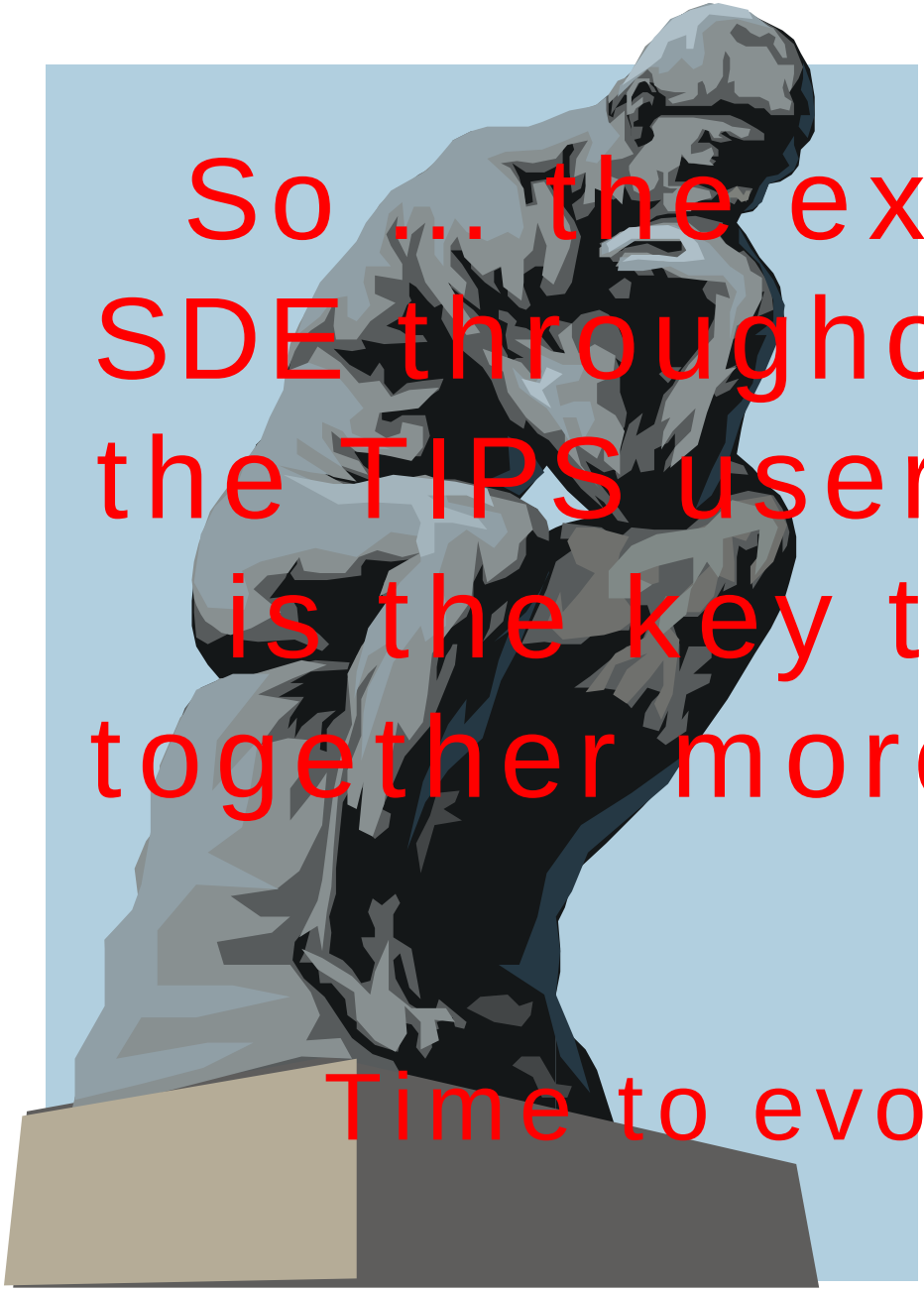


- Several TIPS participants have already deployed SDE and …



- TIPS/NSMCG is proposing purchasing and deploying several new SDE/RDBMSs





So … the expansion of SDE throughout OSM and the TIPS user community is the key to working together more effectively

Time to evolve a collective mindset →

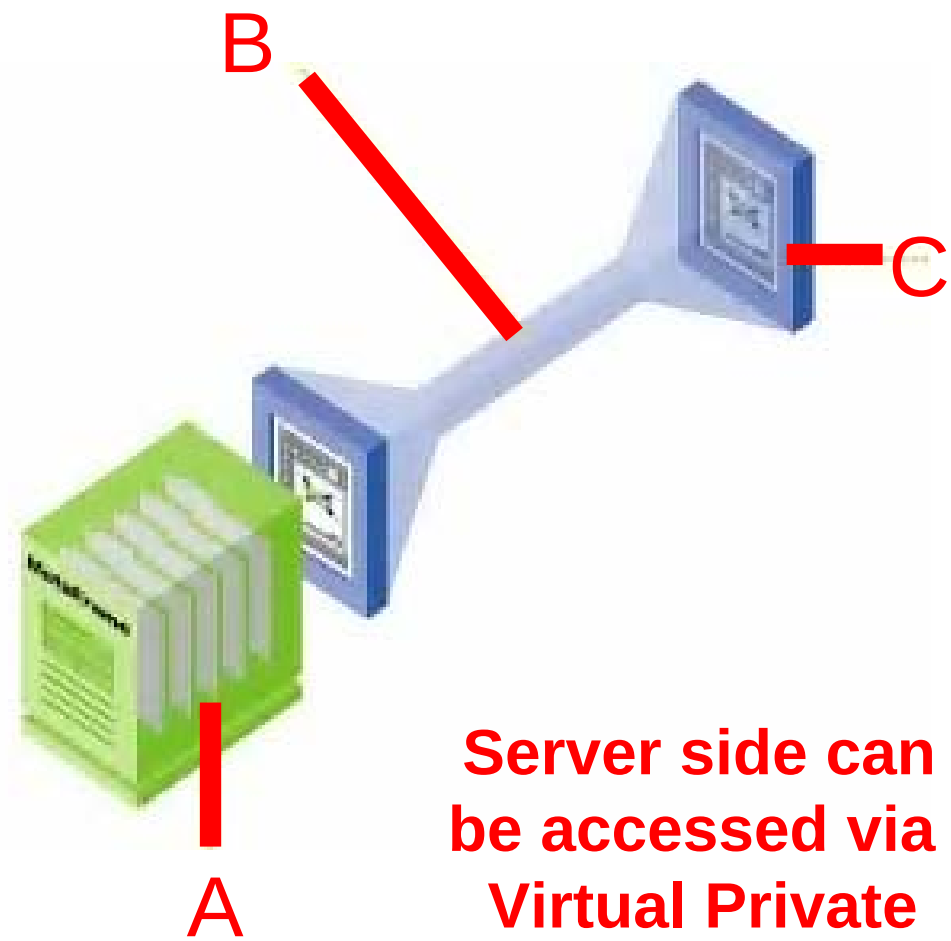
Citrix (terminal services)

- Citrix is hugely successful in West Virginia.
- Citrix can play an important role in a TIPS GIS collective … here's how
  - Some participating states or tribes will be resource limited
    - Insufficient monies
    - Not enough staff

Their users could access a TIPS geospatial collective using Citrix via a Virtual Private Network (VPN) connection from anywhere →

WVDEP Citrix (terminal services)

- How does it work?
  - Applications install and run 100% on server (A)
  - Only screens, mouse clicks and keystrokes travel the network (B)
  - Applications accessed from desktop PC or thin clients (C)



Server side can be accessed via Virtual Private Network (VPN) by desktops anywhere

Scaling up

- OSM's Citrix servers will run ArcGIS providing capacity for resource limited end users unable to deploy the new SDE/RDMS infrastructure.

Now let's look at TIPS users able to deploy SDE/RDMS and how they might work together in a geospatial collective →

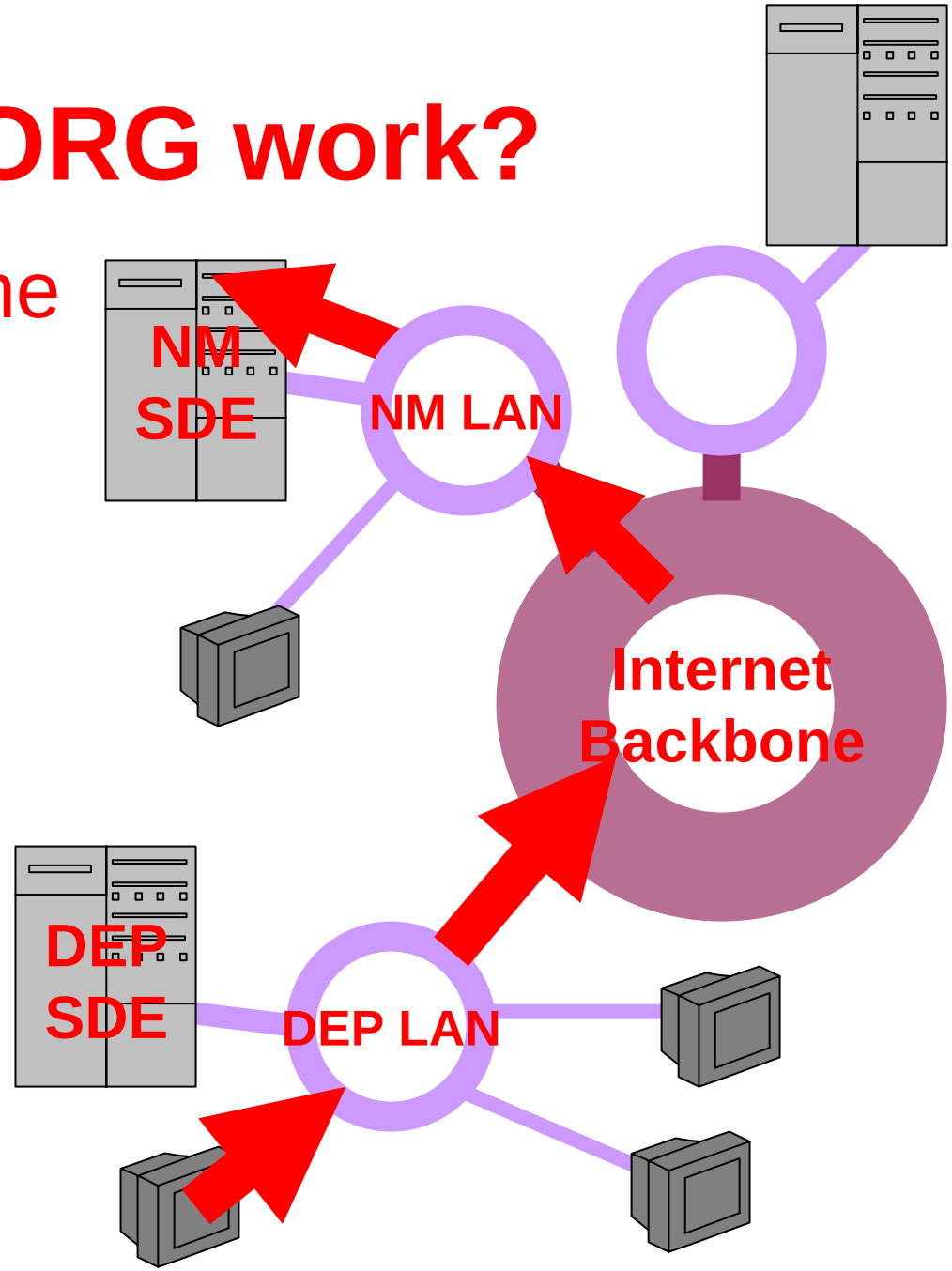
The TIPS GIS B-ORG

(= **Broadband-Orchestrated Regional Group)**

a possible future geospatial collective for deploying and sharing a national mining dataset

How does B-ORG work?

- A hive provides the ability to share geospatial data using broadband access via SDE servers
- New SDE servers can be easily added to the collective.



Network design planning factors

- DC client = standard ArcGIS desktop client, data from SDE, using ArcSDE direct connect to DBMS
- AS client = standard ArcGIS desktop client, data from ArcSDE installed on the server
- Terminal client = access to ArcSDE running on Windows Terminal Server. Data required to support display = 100 KB per query.
- Browser client = access to a standard ArcIMS image map service.
- Web GIS client = ArcGIS desktop client access to a standard ArcIMS image map server.

Tomlinson, Roger, Thinking About GIS: geographic information system planning for managers, CA: ESRI., 2003.

Network design planning factors

Platform client	Data per query		Traffic per query	Bandwidth per query
	Kbpq	Compressed Kbpq	Kbpq	Kbpq
File server client	1,000	5,000	50,000	5,000
DC client	1,000	1,000	10,000	1,000
AS client	1,000	500	5,000	500
Terminal client	100	28	280	28
Browser client	50	50	500	50
Web GIS client	100	100	1,000	100

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Option using smallest bandwidth and providing most technical capabilities

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How well does it work?

Test	Time in seconds
Load/display County layer	20
Load/display Roads (TIGER)	96
Pan & redraw (~ 10 mile extent)	3 - 5
Select Roads in Kanawha County	24
Export selected Roads to local shapefile	27

WV B-ORG connection testing:
DEPuser (M. Shank) to RTI SDE server – Jan 17, 2006

B-ORG DEMO

The TIPS Broadband-Orchestrated Regional Group (B-ORG) ...

a collective of SDE servers empowering OSM & TIPS users with the ability to share national coal mining geospatial data far more efficiently.