Replication; read only installs to fully filtered forwarding

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Agenda

- Replication, what do we mean?
- A brief history of Replication
- What’s New in 2013.1
- What does this mean?
Replication, what do we mean?

Some generalities on Replication
Replication, what do we mean?

replication  rep·li·ca·tion (rěp'li-kā'shən) n.

- The act or process of duplicating or reproducing something
- sharing information so as to ensure consistency between redundant resources, such as software or hardware to improve reliability, fault-tolerance, or accessibility.
Replication, what do we mean?

- Versioning Service
- Proxy Service
- Replication Service
- Distributed Global Reach
A Brief History of Replication

Long ago in a Versioning Service far far away…
A Brief History of Replication

- Proxy Service
  - Low Overhead
  - Shared Service Load
  - Really just a caching Service
  - No Metadata, just archives
A Brief History of Replication

- p4 export and p4 replicate
  - 2010.1
  - Read-only purposes
  - Reduce load and downtime on the primary server
  - Provide warm standby servers
  - No archive files.
A Brief History of Replication

- p4 pull
  - 2010.2
  - Incorporated into the communication protocol
  - “p4 configure”
  - Both Meta-data and Archive files!
A Brief History of Replication

- 2012.1 Features
  - Build Farm Service
    - Local Workspaces
    - Separate load from the Master
  - Forwarding Replica Service
    - Process commands locally
    - Metadata and Archive files
What’s New in 2013.1
“Where Are We Now?”
What’s New in 2013.1

- Replica Chaining
- On-Demand Replication
- Replication Filtering
- Proxy Process Monitoring
- p4 pull extensions
Replica Chaining

- Master – Replica – Replica1 … ReplicaN
  - Same Setup, just change P4TARGET
  - Limitations
    - Read-Only from anything
    - Forwarding only to Forwarding
    - Build Farm from only Read-Only or Forwarding

- Why?
Replica Chaining

- Main Perforce Service
- Forwarding Replica
- R/O Replicas
- Build farm Replicas

Forwarding Replica
- R/O Replicas
- Build farm Replicas

Build farm Replicas
- R/O Replicas
On-Demand Replication

- Metadata pulled as all other replicas
- Archive file behavior like a Proxy
  - `lbr.replication=ondemand`
  - Otherwise the same setup
- Limitations
  - `p4 verify -t` and `p4 pull -u` not supported
- Why?
Replication Filtering

- Subset of the Target
  - p4 pull, p4d -jd and p4 export supported
- p4 server spec changes
  - ClientDataFilter:
  - RevisionDataFilter:
Replication Filtering continued…

**ClientDataFilter:**
- Optional field
- Includes have lists, working records and pending resolves.
- Advantages with standard naming convention
- Pattern in client syntax with optional wildcards
  - `//client-pattern/...` -- client data to include
  - `//-client-pattern/...` -- client data to exclude
RevisionDataFilter:

- Optional field
- Includes revision records, integration records, label contents and files in submitted changelists.
- Pattern in depot syntax with optional wildcards
  - //depot/pattern/... -- depot data to include
  - //-depot/pattern/... -- depot data to exclude
ServerID: Replical
Type: server
Name: Replical
Services: replica
Description:
    Example use of ClientDataFilter and RevisionDataFilter
ClientDataFilter:
    -//...
        //sydney-australia-client/...
RevisionDataFilter:
    -//depot/Offices/...
        //depot/Offices/Australia/Sydney/Protected/...
Replication Filtering continued...

- Performance Considerations
  - Requires master to interpret journal columns
  - `-T` options just works on unparsed data
  - Master will be doing more processing
    - Complexity of mappings will matter – monitor CPU
Proxy Process Monitoring

- Proxy monitor table, `pdb.monitor`
  - `proxy.monitor.level`
    - Set the proxy monitoring level, 0 - 3
  - `proxy.monitor.interval`
    - Monitoring interval in seconds
- View with “-m N” switch
  - `\$ p4p -r \$P4PCACHE -m 1`
Proxy Process Monitoring continued...

```
$ p4p -r $P4PCACHE -m1
pid/thd start_tm func
3153 16:03:12 sync

$ p4p -r $P4PCACHE -m2
pid/thd client_addr start_tm func snd2clnt rcvfrmc snd2svr rcvfrms
3153 10.103.0.180 16:03:12 sync 18 4 912 5
```
p4 pull extensions

- p4 pull -d
  - Remove file from transfer list

```
p4 pull -d -f file -r revision
```

The -d flag specifies that the pending file content transfer should be cancelled. You must also specify the filename and revision using the -f and -r flags. The filename and revision information can be viewed using 'pull -l'. The 'pull -d' command can be useful when a file transfer is failing due to unrecoverable errors on the master.
What does this mean?

Examples of Replication and Fully Distributed setup
What does this mean?

- Replicas setup for network utilization
- Selective content transfer
- Load distribution
- Local Meta-Data speeds for remote users
RevisionDataFilter:
-//...
//3rdParty/ProjectX/...
Network Utilization Layout Example
Load distribution Example

- Sydney Perforce Forwarding Replica Example
  - Small support office
  - Replica handling commands locally rather than Master
    - 200K commands offloaded to replica so far this year
    - Since October 2011, 22.5 Million commands offloaded in total
  - P4Web, Commons and Chained Replica connected
Questions?
See us in the Demo Lounge

Try Commons Today
Commons 13.2 Available For Download

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