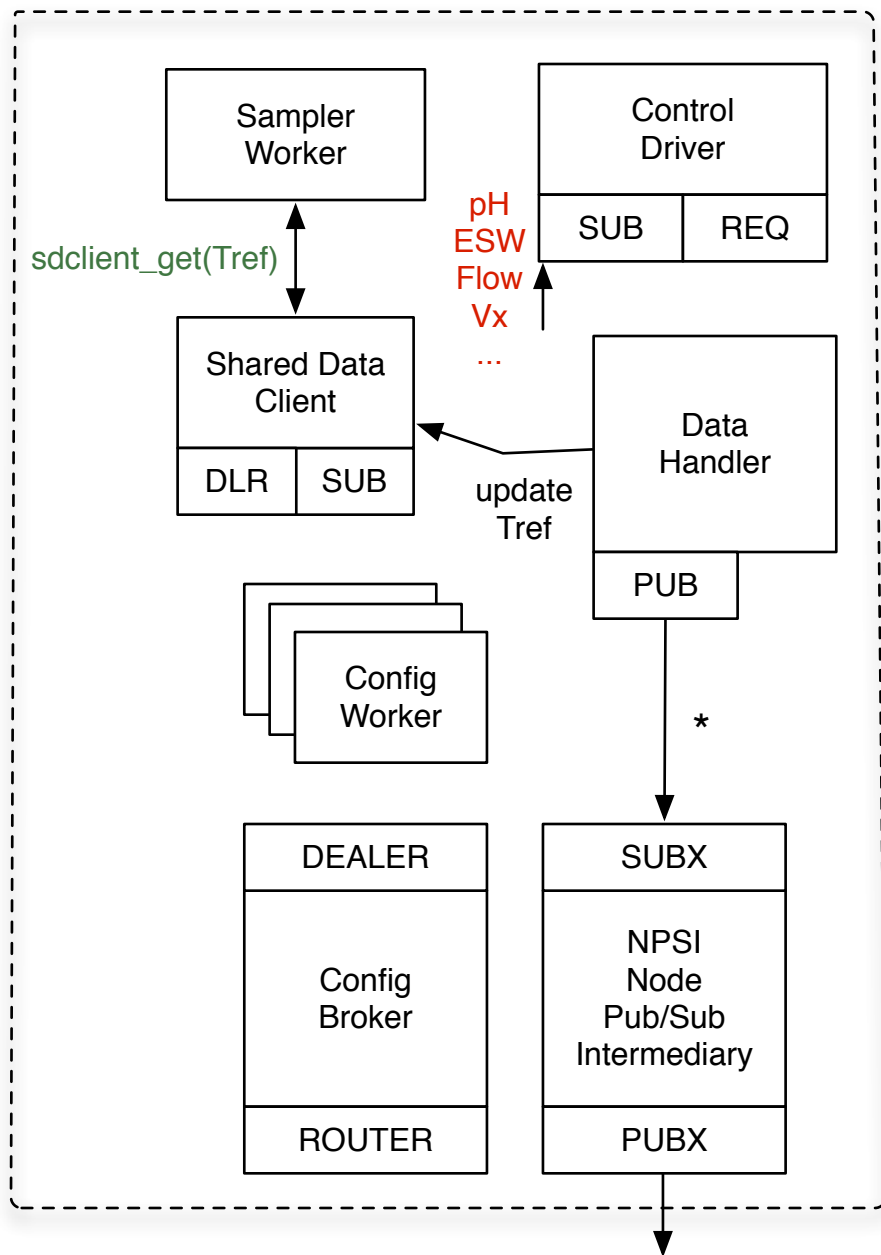
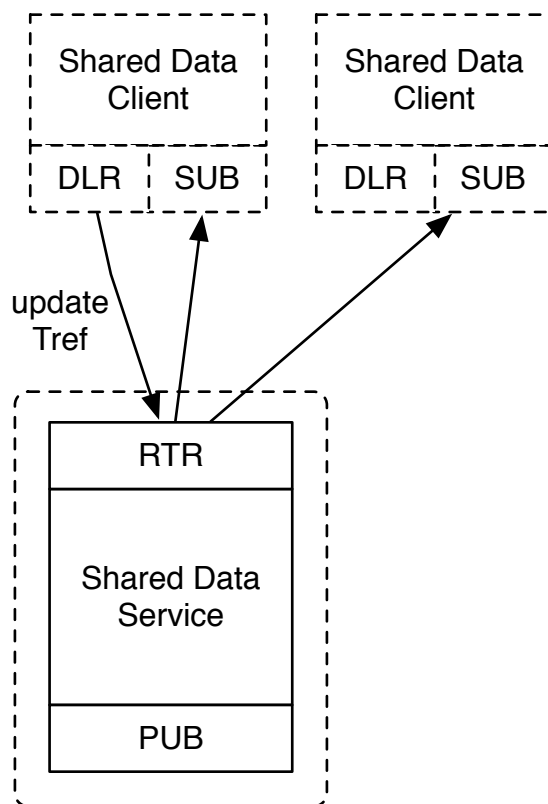




ESW
pH
Flow
Vx
Eng
CTD
PAR
...

Each node has a key value client that reflects values to internal consumers (control service, GUI). Shared data clients may reflect a subset of values (topics) maintained by the SDserver.



Shared Data Service arbitrates and publishes stream value updates that are shared by several users, e.g. reference temp (Tref)

One active and one backup are run on different nodes (or the same node) in a binary star configuration (auto failover, manual recovery)

Nodes know addresses
of primary and backup KVS

Tref

Vref

Tref

SDServer

Node A
SDC

Node B
SDC

Node C
SDC

Start
Primary
and
Backup
(any order)

Nodes provide values and
request initial updates (if
more recent) (REQ/REP)

DataHandlers provide topic
updates SDClients (API)

SDClient submits update to server
(REQ/REP)

Server publishes updates
(PUB/SUB)

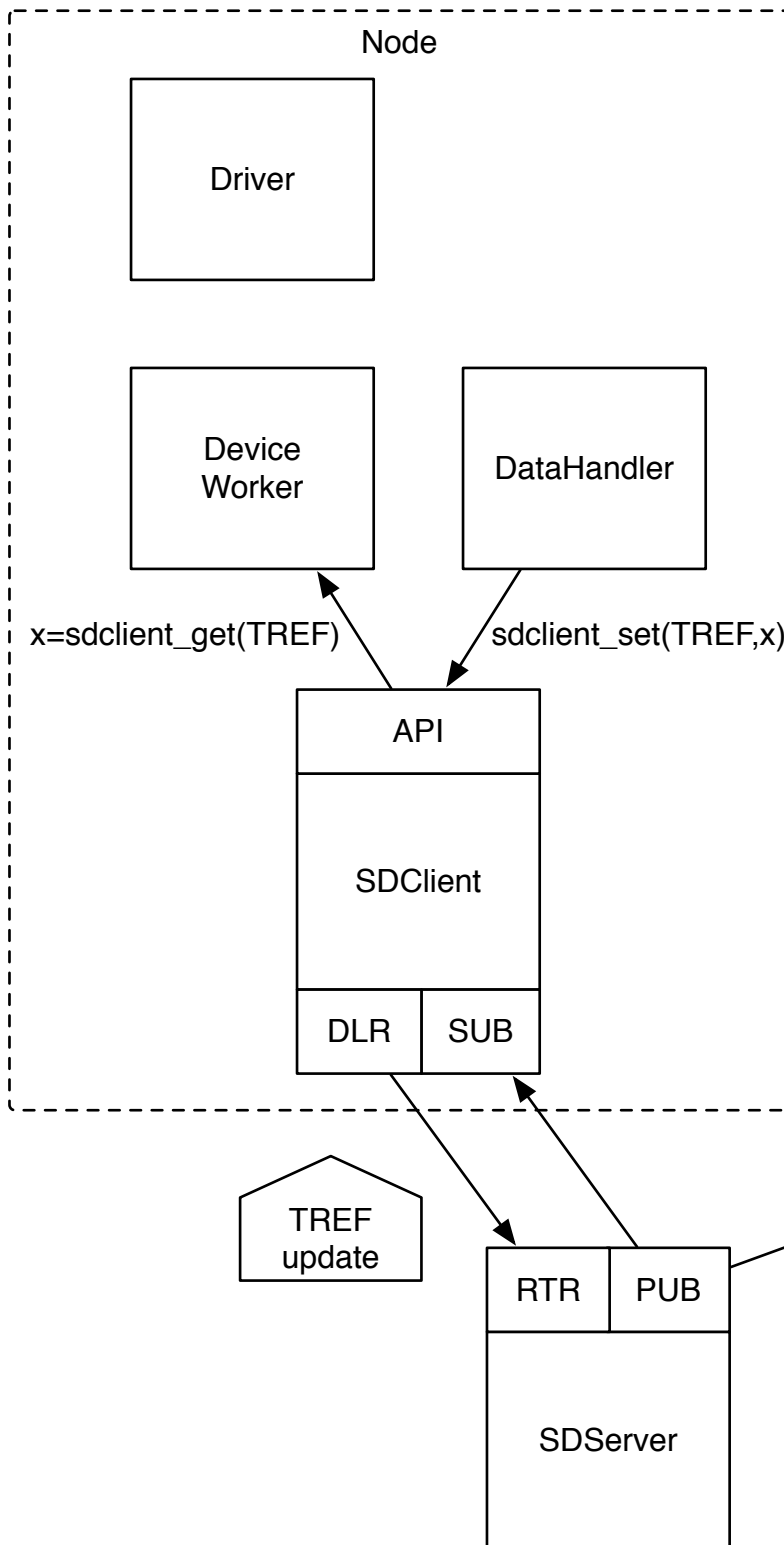
Clients update local topics
Consumers request topic
values (API)

service
fails. node
shutdown,
etc.

Backup detects
failure and activates

Nodes detect failure (via client
heartbeat) and connect to backup

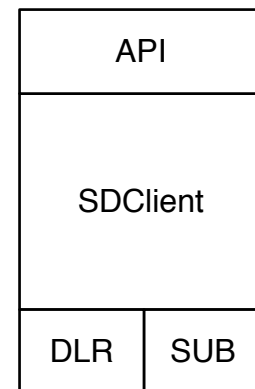




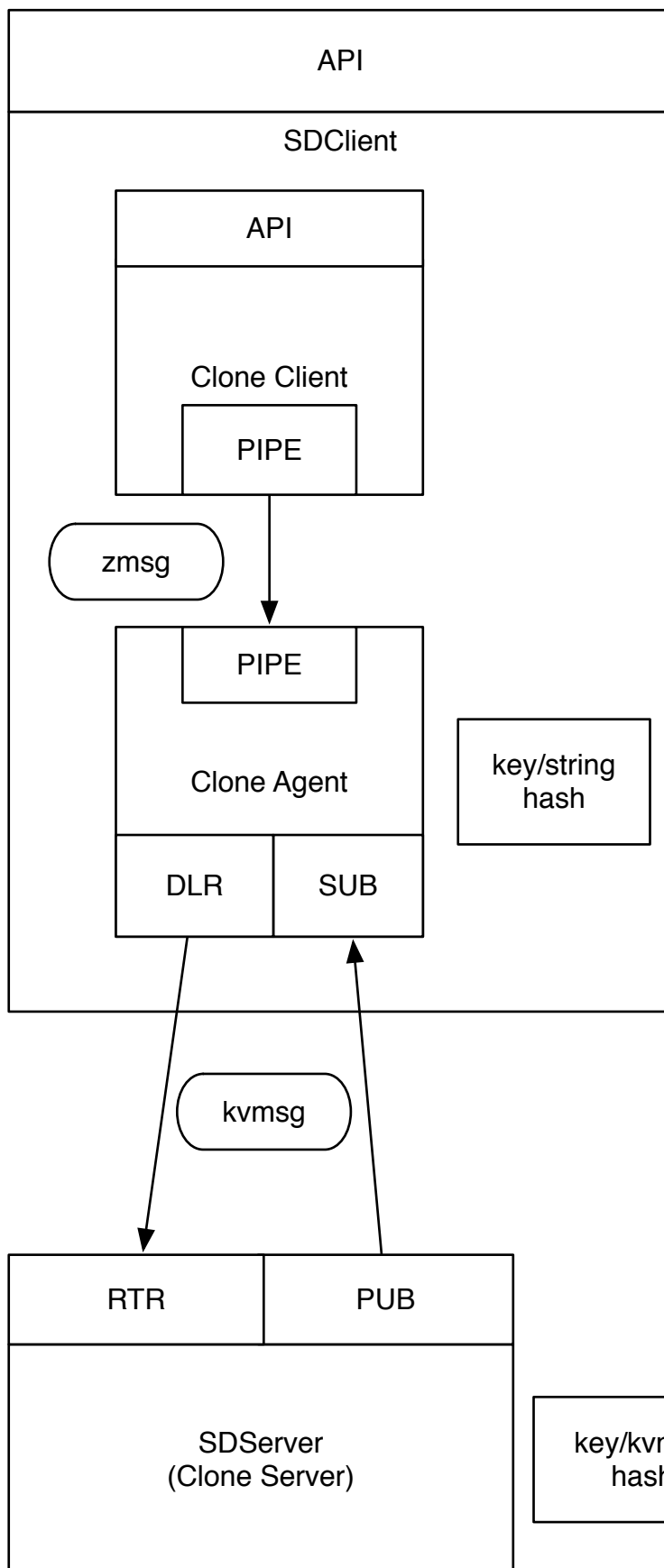
clients update/request
key/value pairs
maintained by the
server

The server pushes
updates to all clients

Each client maintains
a local copy of the
key/value pairs.



A second backup server
may be run.
The backup state
tracks the primary
server, and clients
will switch to the
backup automatically
if the primary stops.



Shared Data
Client/Server
Internals

SDClient is a thin wrapper
for Clone

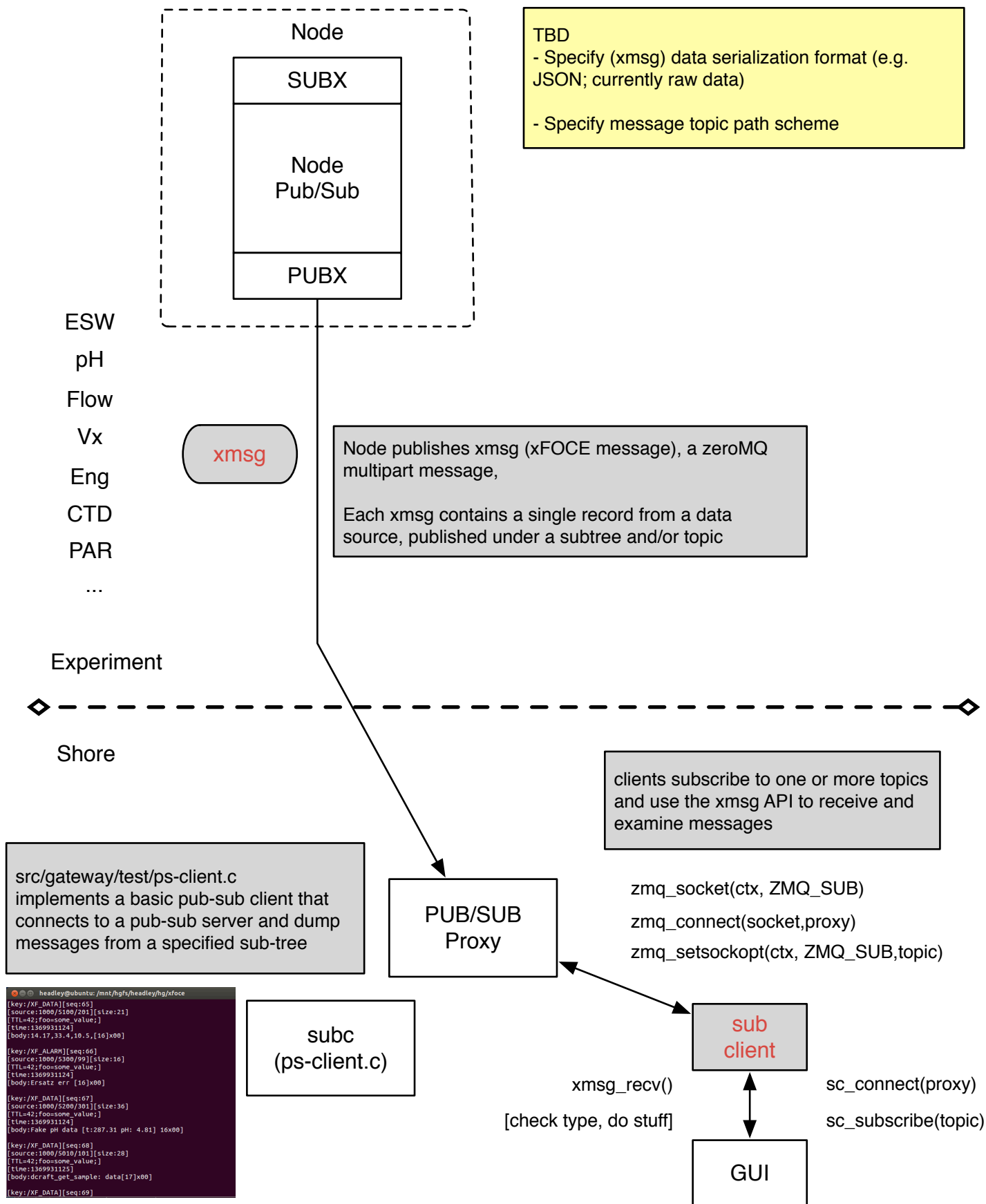
Clone consists of a client
API and an Agent that
manages state

zmsg with string data
payload are passed between
Client and Agent

Client stores strings as
values

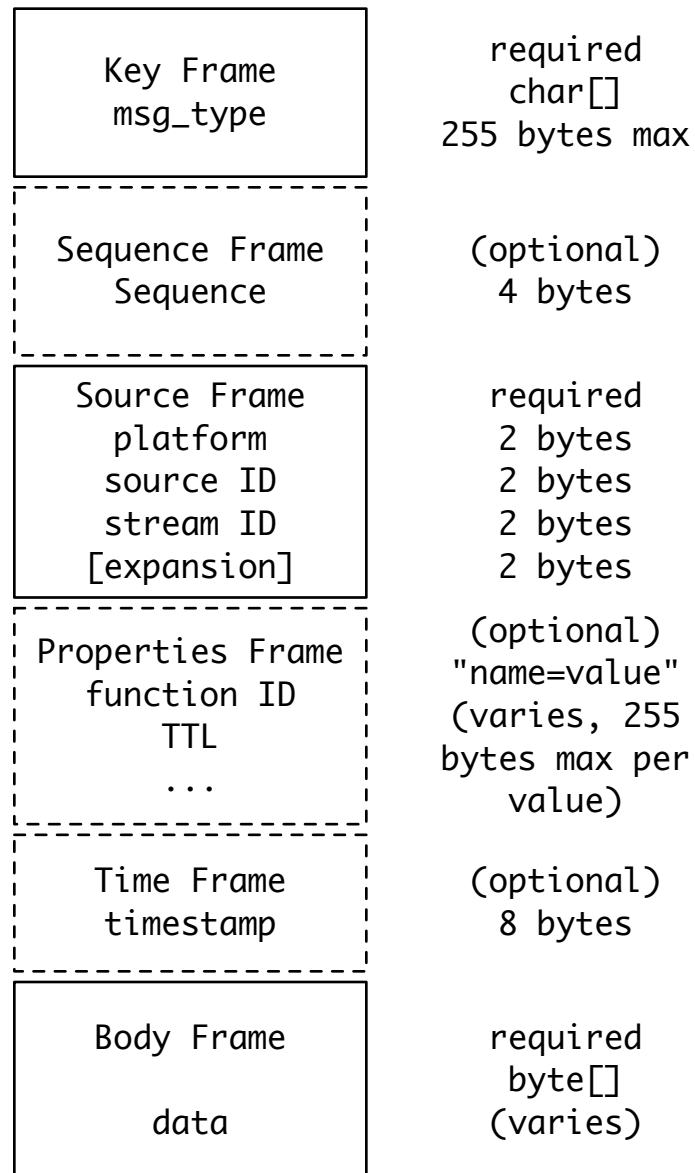
kvmsg are passed between
Agent and Server

Server stores kvmsg
as value



xmsg: xFOCE Message Structure for Asynchronous Data and Event PUB/SUB

The xmsg format is
used for PUB/SUB



This is being currently being developed

potential xmsg path scheme
(TBD)

/platform/tree/topic/producer

platform:
node<id>

tree:
XF_DATA
XS_SDATA
XF_EVENT
XF_ALARM
XF_STATUS

topic:
CTD, ESW, PH
TREF,VREF
PLA, SVC, EXP
SW_ERR, HW_ERR, ENV, GF
...

producer:
ctd.fwd.port
ph.int.fwd.stbd
svc.sbe19.0

Cheap
[infrequent, synchronous
simple, not optimized]

Nasty
[asynchronous, high
volume, optimized]

Stream Discovery Protocol

Archive Sync Protocol

Configuration Protocol

Archive Access Protocol

Status Query Protocol

Stream PUB/SUB Protocol

Device Control Protocol

Stream Discovery Protocol

*SDP-protocol = *offer-service discover-service*

discover-service = C:ICANHAS stream (S:provider - OK / S:WTF)

offer-service = C:IHAS stream host port (S:IHAS - OK / S:WTF)

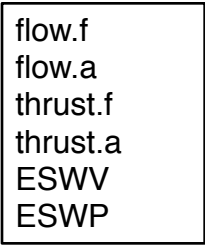
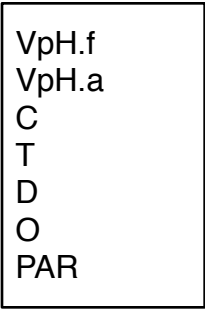
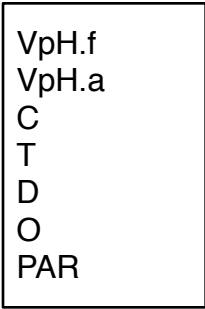
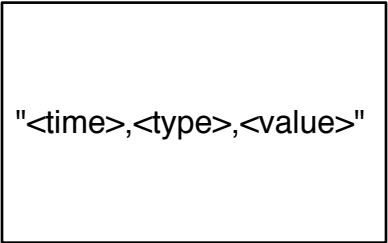
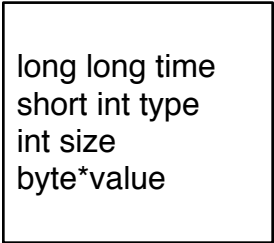
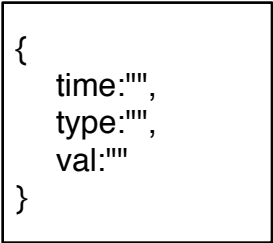
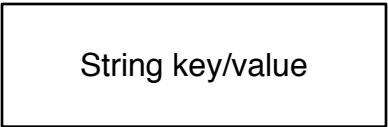
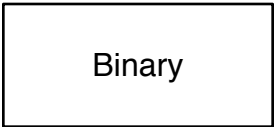
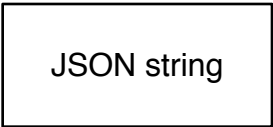
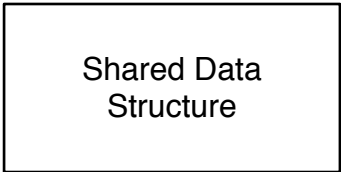
provider = host:port

*stream = TREF
 / VREF*

*host = dotted-quad
 / domain-name*

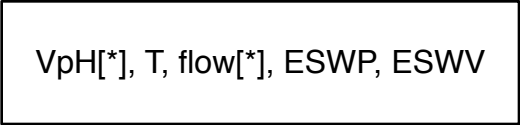
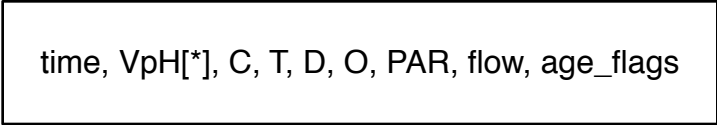
*port = 4*5DIGIT*

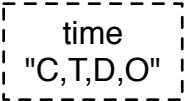
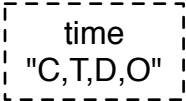
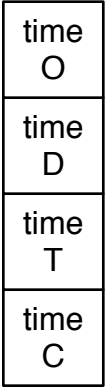
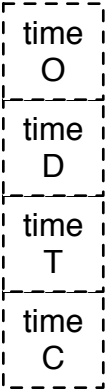
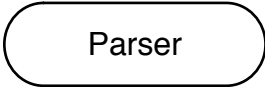
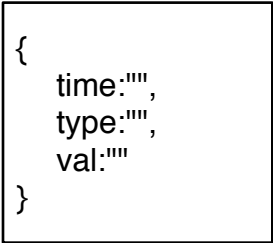
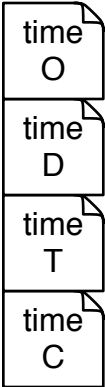
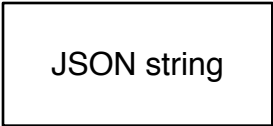
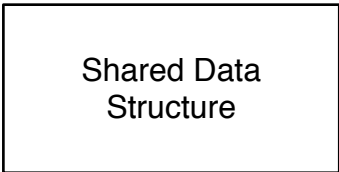
*dotted-quad = 4*DIGIT". "*



master science record

control sys





DCON

