

# I2RS Topology Example

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# I2RS Topology Example

- Attempt to match Andy slides with I2RS RIB model (8/31/2015)
- Boiled down to IPv4 route
  - 128.2/16 with nexthop 1 – added by netconf config
  - 128.2/16 with nexthop 2 – added by I2RS RIB
  - DDOS attack causes you to overwrite NETCONF config with I2RS RIB route

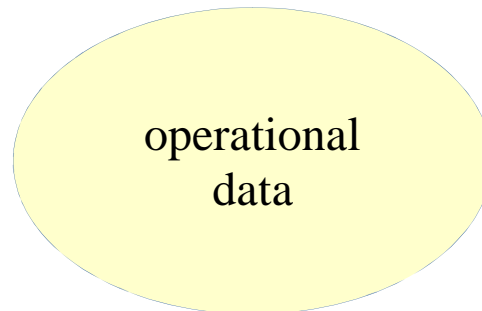
# Current Datastores



config true;

---

config false;



All operational data exists alongside config=true but there is no datastore defined for config=false data nodes

# Current Datastores (Ext. 1)

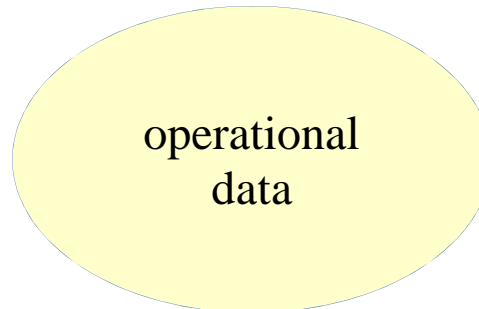


config true;

intended config

config false;

actual config



Conceptual intended and actual values are determined by the server as an implementation detail

# Topology

```
module ietf-network {
  grouping network-ref {
    leaf-network-ref {
      type leafref {path "network/network-id";
    }
  }
  grouping node-ref {
    leaf-network-ref {
      type leafref {
        path "network/network-id-current()/
        ../network-ref]" + +"/node/node-id";
      }
      uses network-ref;
    }
    list network {
      key "network-id"
      leaf network-id {type network-id; }
      leaf server-provided {type boolean;
        config false; }
      list supporting-network {
        key "network-ref";
        leaf network-ref {type leafref;
          path "network/network-id"
        }
      }
    }
  }
}
```

```
list node {
  key "node-id";
  leaf node-id {type node-id;};
  list supporting-node {
    key "network-ref node-ref";
    leaf network-ref {
      type leafref {path
        "../../../supporting-network/network-ref"
      }
    }
    leaf node-ref {
      type leafref {
        path "/network/node/node-id";
      }
    }
  }/end supporting node list
} /end node
} /end grouping node-ref
```

```
Network 1:
node: 1
  network-1
  node, 1,2, 3
```

# Route

Network 1:

node: 1

network-1

link [id-5]

source {

source-node: 1

tp-id:1

}

destination {

dest-node: 2

tp-id:4

}

leaf link-id inet-uri

list supporting-links

key: 1 2

network-ref

link-ref

```
module ietf-network-topology { ....
```

```
augment “/nd:network”
```

```
list link {
```

```
key “link-id”;
```

```
container source {
```

```
leaf source-node {
```

```
type leafref { path “../.././nd:node/nd:node-id”; }
```

```
mandatory true ;}
```

```
leaf source-tp {
```

```
type leafref { path “../.././nd:node/[nd:node-id=current()../”
```

```
+ “source-node]/ termination-point/tp-id”; }
```

```
}/container source
```

```
container destination {
```

```
leaf dest-node {
```

```
type leafref { path “../.././nd:node/nd:node-id”; }
```

```
mandatory ture;
```

```
}
```

```
leaf dest-tp {
```

```
type leafref { path “../.././nd:node/[nd:node-id=current()../”
```

```
+ “source-node]/ termination-pont/tp-id”;
```

```
}
```

```
}/container destination
```

```
leaf link-id { type link-id;}
```

```
list supporting-links {
```

```
key “network-ref link-ref”
```

```
leaf network-ref { type leafref {
```

```
path “../.././nd:supporting-network/nd:network-ref”;
```

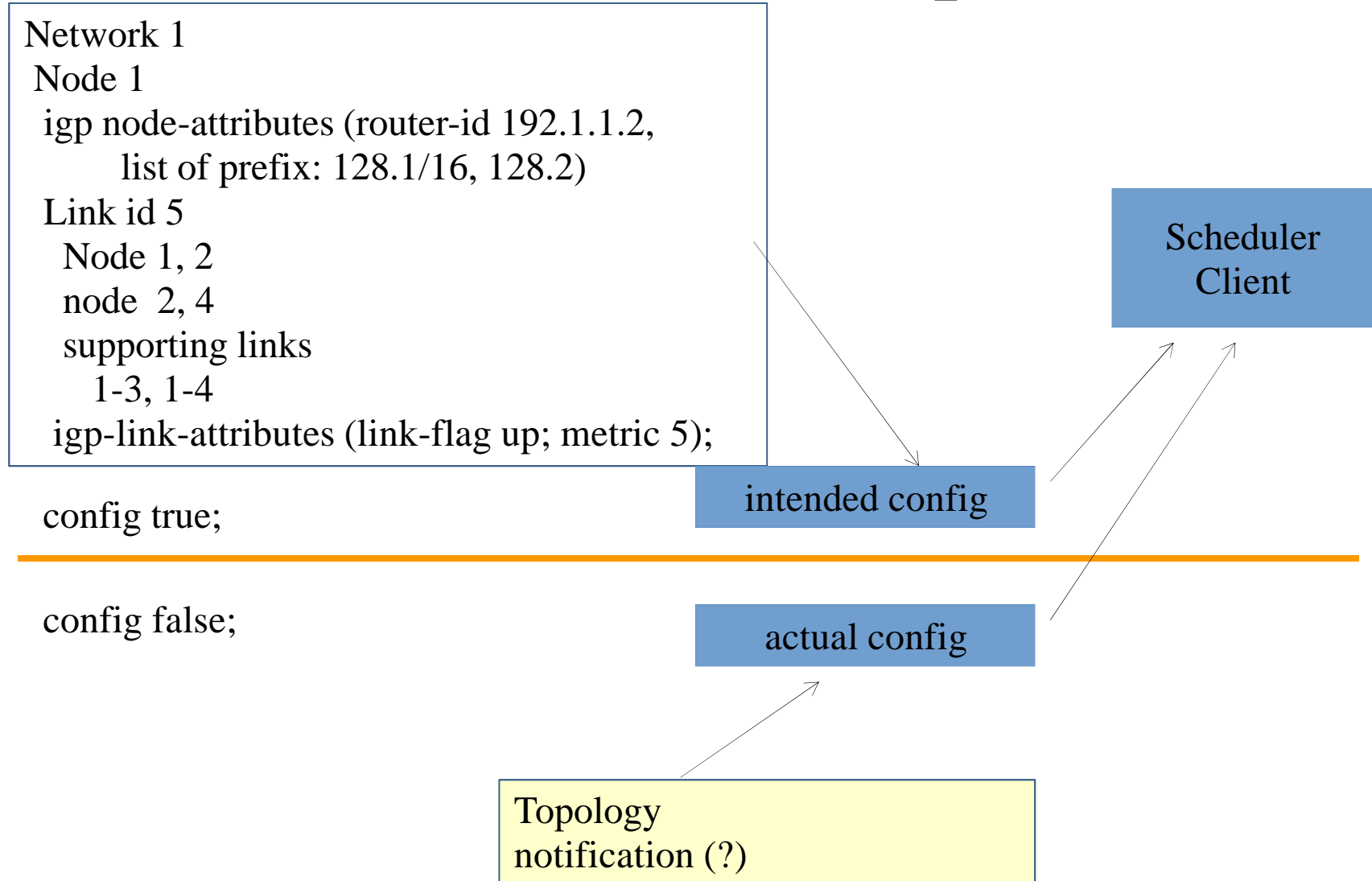
```
leaf link-ref { type leafref { path “nd:network [nd-networkid=cuurent()/
```

```
...+ /network-ref]/link/link-id }
```

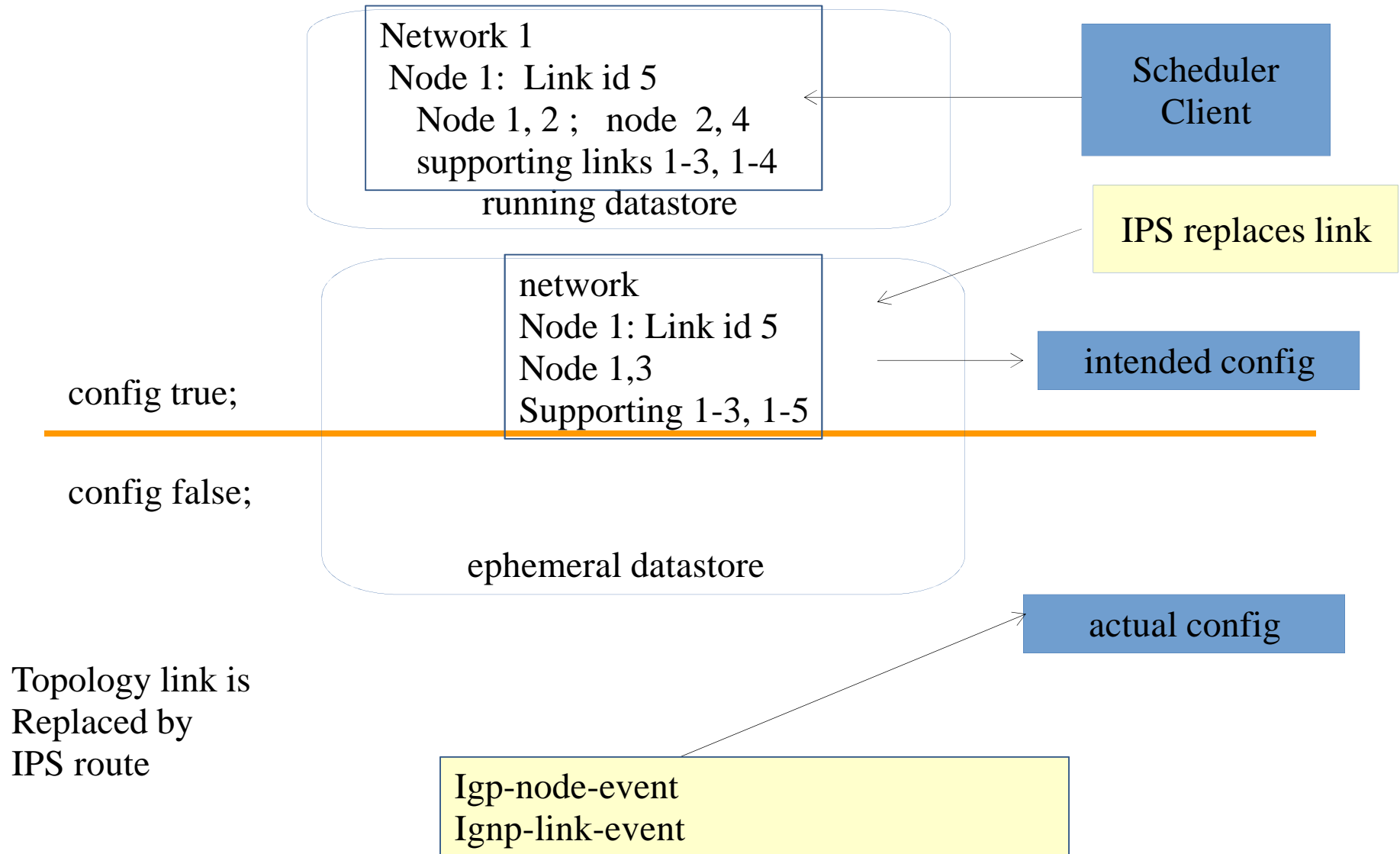
```
}/list supporting links
```

```
} augment
```

# Thermostat Model Equivalent

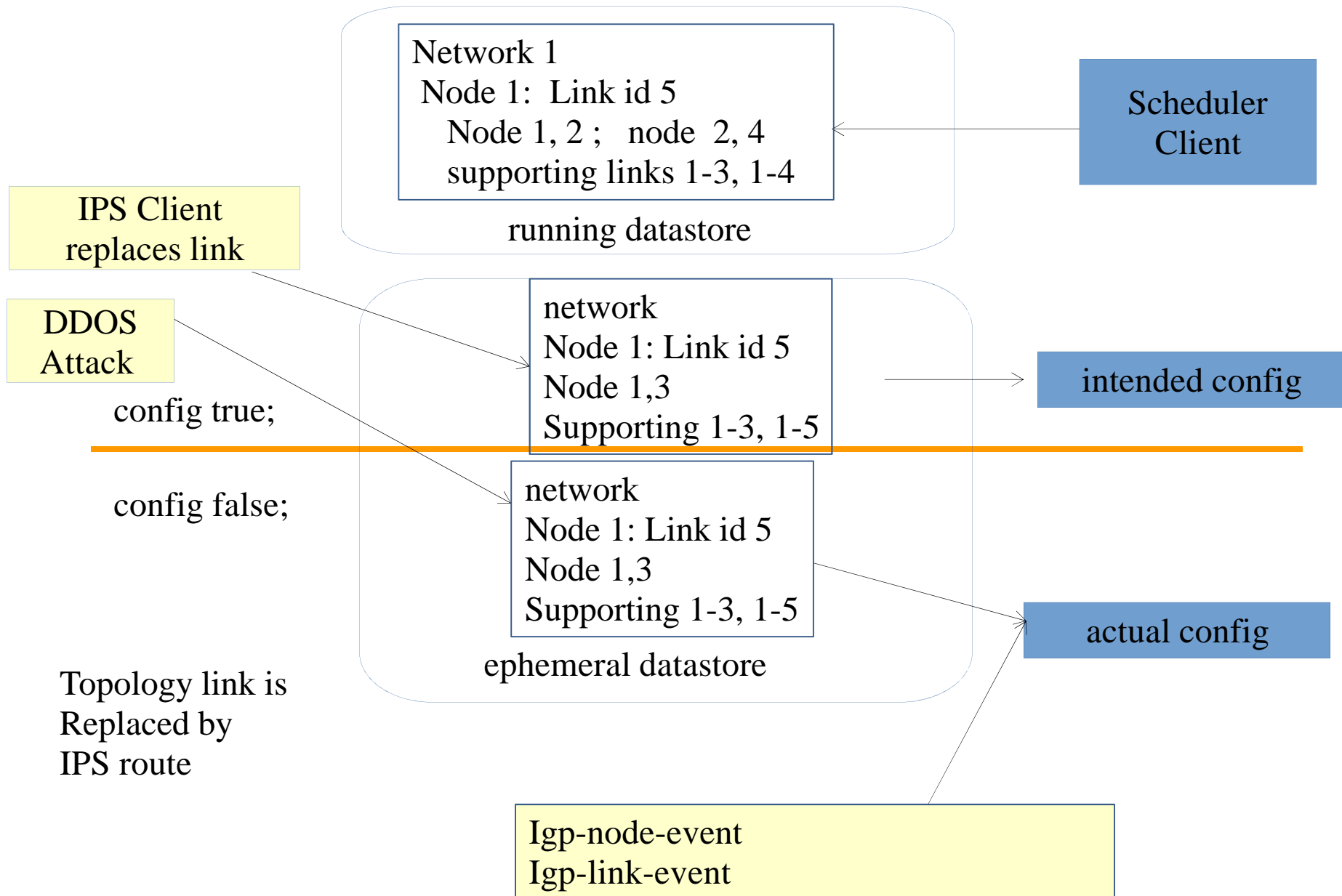


# Topology plus ephemeral link





# Topology plus ephemeral link



# RESTCONF Example

## RESTCONF Running Datastore Edit

PUT /restconf/data/l3-unicast-igp-topology/network-ref=1/node-ref=1/link-id=5/ source/source-node=1/source-tp=2/destination/dest-node=2/dest-tp=4/

## RESTCONF Ephemeral Datastore Edit of config=true

TBD

## RESTCONF Ephemeral Datastore Edit of config=false

TBD

# Batch and overlapping installs

- Batch for topology
  - PUT?
  - RPC?
- Large batch with some overlap
  - Flag for individual route installs makes sense for some implemented
  - Flag for all-or-nothing makes sense for others?