



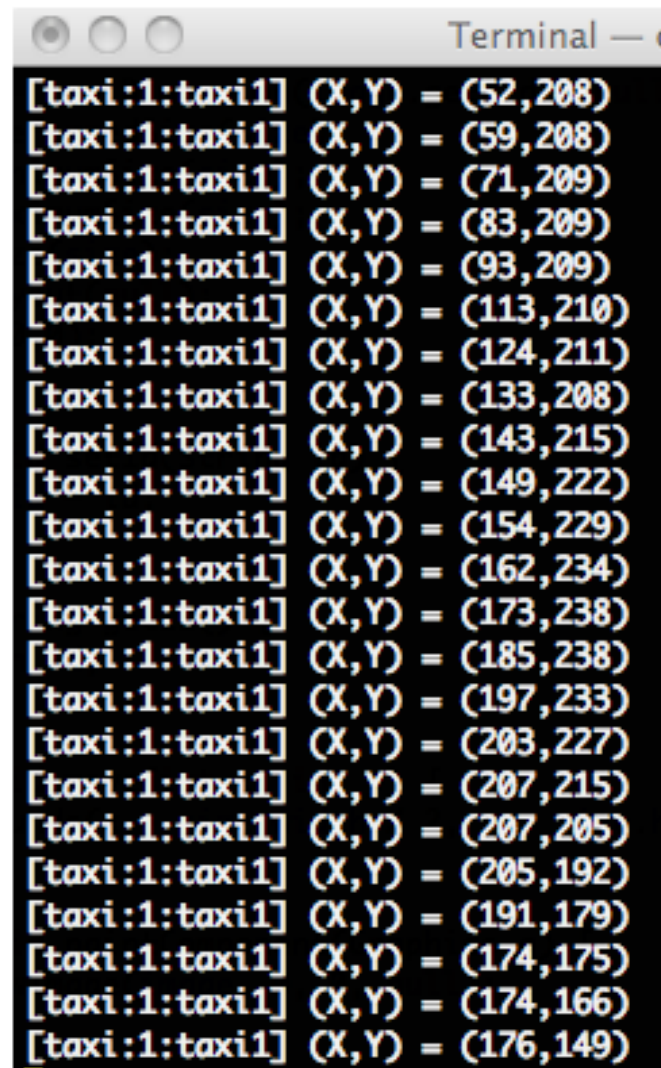
Yet Another Badass Application

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Christoffer Hamberg
Daniel Persson
Gustav Åberg

Mellanvara för publish/subscribe-nätverk



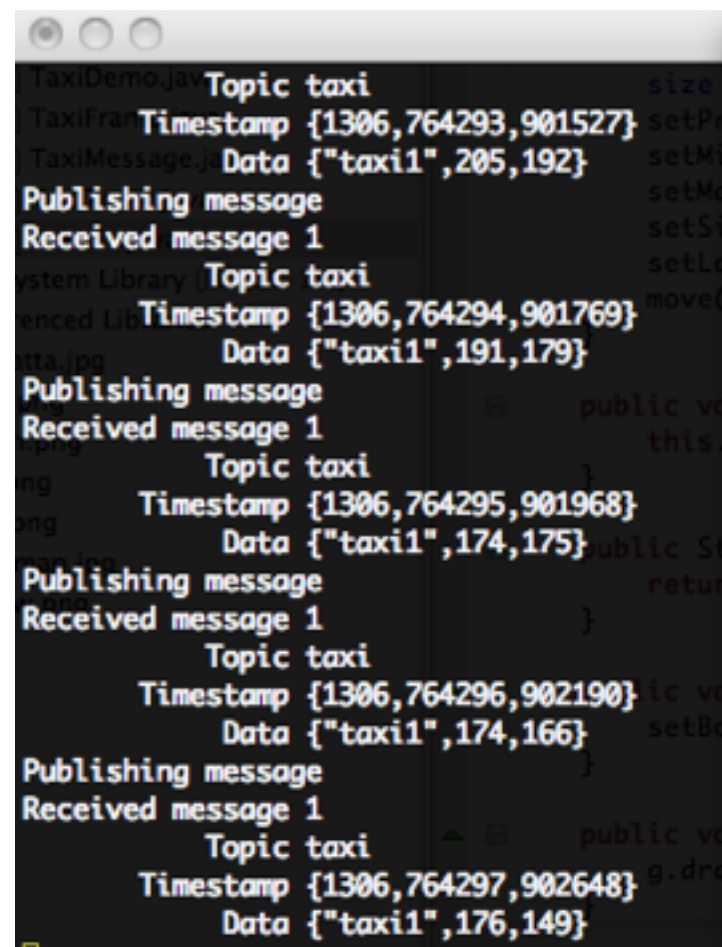
Taxibil

A terminal window titled "Terminal — c" displays a list of 20 taxi records. Each record is on a new line and follows the format "[taxi:1:taxi1] (X,Y) = (X,Y)". The coordinates (X,Y) are listed in descending order of X. The window has a standard macOS-style title bar with three buttons (red, yellow, green) on the left.

```
[taxi:1:taxi1] (X,Y) = (52,208)
[taxi:1:taxi1] (X,Y) = (59,208)
[taxi:1:taxi1] (X,Y) = (71,209)
[taxi:1:taxi1] (X,Y) = (83,209)
[taxi:1:taxi1] (X,Y) = (93,209)
[taxi:1:taxi1] (X,Y) = (113,210)
[taxi:1:taxi1] (X,Y) = (124,211)
[taxi:1:taxi1] (X,Y) = (133,208)
[taxi:1:taxi1] (X,Y) = (143,215)
[taxi:1:taxi1] (X,Y) = (149,222)
[taxi:1:taxi1] (X,Y) = (154,229)
[taxi:1:taxi1] (X,Y) = (162,234)
[taxi:1:taxi1] (X,Y) = (173,238)
[taxi:1:taxi1] (X,Y) = (185,238)
[taxi:1:taxi1] (X,Y) = (197,233)
[taxi:1:taxi1] (X,Y) = (203,227)
[taxi:1:taxi1] (X,Y) = (207,215)
[taxi:1:taxi1] (X,Y) = (207,205)
[taxi:1:taxi1] (X,Y) = (205,192)
[taxi:1:taxi1] (X,Y) = (191,179)
[taxi:1:taxi1] (X,Y) = (174,175)
[taxi:1:taxi1] (X,Y) = (174,166)
[taxi:1:taxi1] (X,Y) = (176,149)
```

```
{publish,{taxi,taxi-id,{chaufför,x-koordinat,y-koordinat}}}
```

Taxicentralen



The screenshot shows a Java IDE console window with the following output:

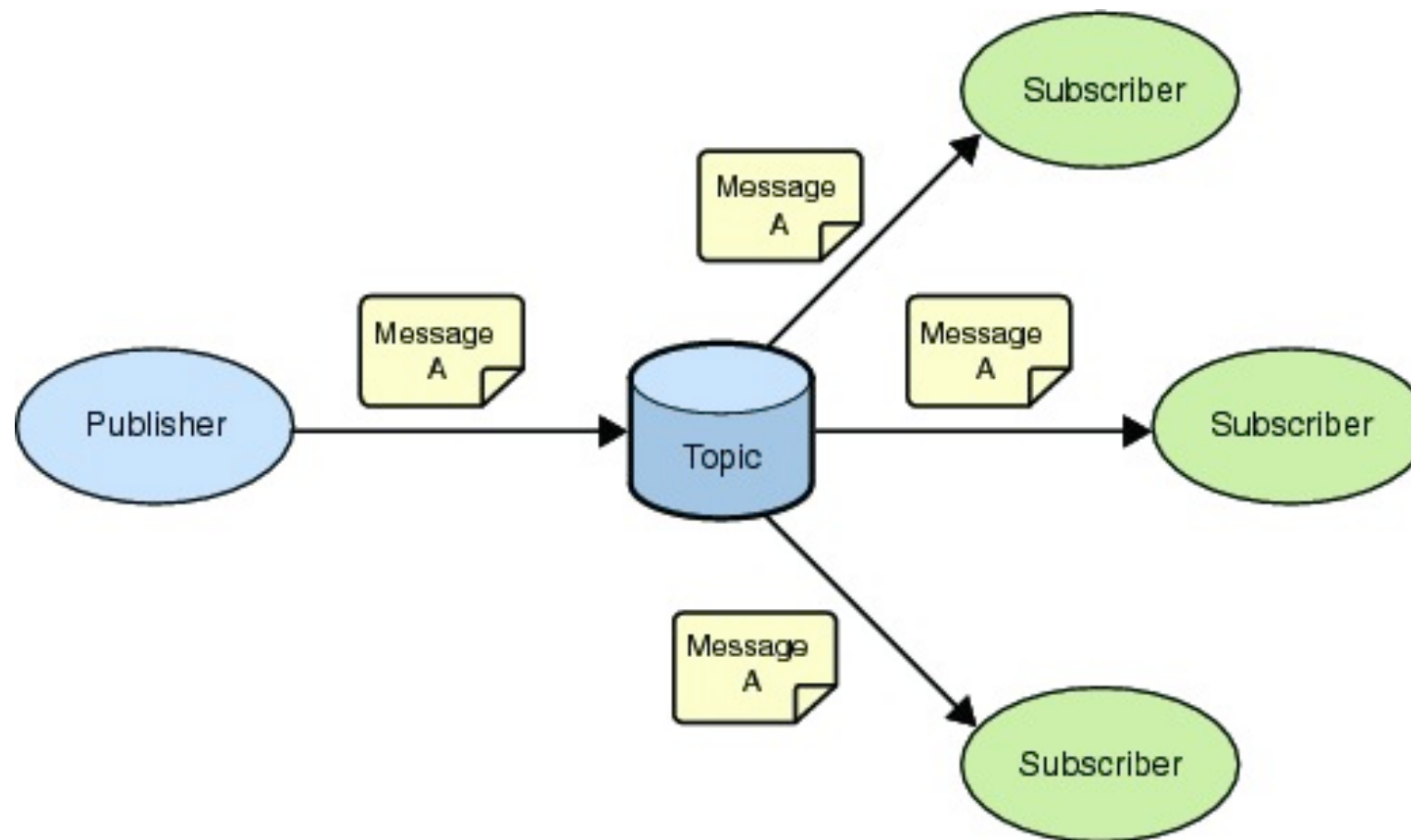
```
TaxiDemo.java Topic taxi size
TaxiFr Timestamp {1306,764293,901527} setPr
TaxiMessage.J Data {"taxi1",205,192} setMi
Publishing message setMa
Received message 1 setSi
System Library Topic taxi setLa
Timestamp {1306,764294,901769} moveC
Data {"taxi1",191,179}
Publishing message public vo
Received message 1 this.
Topic taxi
Timestamp {1306,764295,901968}
Data {"taxi1",174,175} public St
Publishing message return
Received message 1
Topic taxi
Timestamp {1306,764296,902190} ic vo
Data {"taxi1",174,166} setBo
Publishing message
Received message 1
Topic taxi public vo
Timestamp {1306,764297,902648} g.dra
Data {"taxi1",176,149}
```


Taxicentralen

```
TaxiDemo.java Topic taxi
TaxiFrans Timestamp {1306,764293,901527}
TaxiMessage.java Data {"taxi1",205,192}
Publishing message
Received message 1
System Library Topic taxi
Timestamp {1306,764294,901769}
Data {"taxi1",191,179}
Publishing message
Received message 1
Topic taxi
Timestamp {1306,764295,901968}
Data {"taxi1",174,175}
Publishing message
Received message 1
Topic taxi
Timestamp {1306,764296,902190}
Data {"taxi1",174,166}
Publishing message
Received message 1
Topic taxi
Timestamp {1306,764297,902648}
Data {"taxi1",176,149}
```



Publish/subscribe



Publish/subscribe

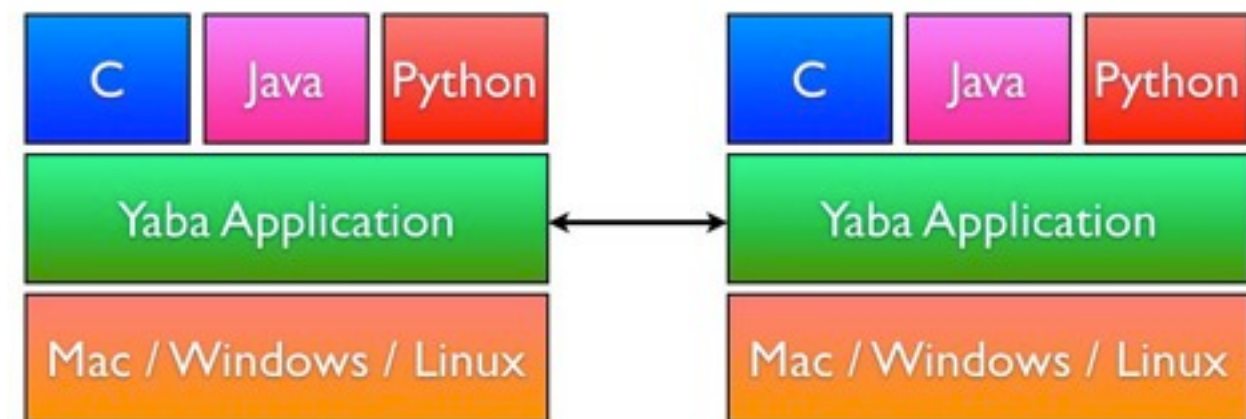
- Decoupling
- Skalbarhet
- Nackdelar

"..scalability for pub/sub products under high load in large deployments is a research challenge"

- Wikipedia

Yaba-applikationen

- Lokal bakgrundsapplikation
- Gränssnitt mot applikationer i olika språk
- Plattform- och språkoberoende

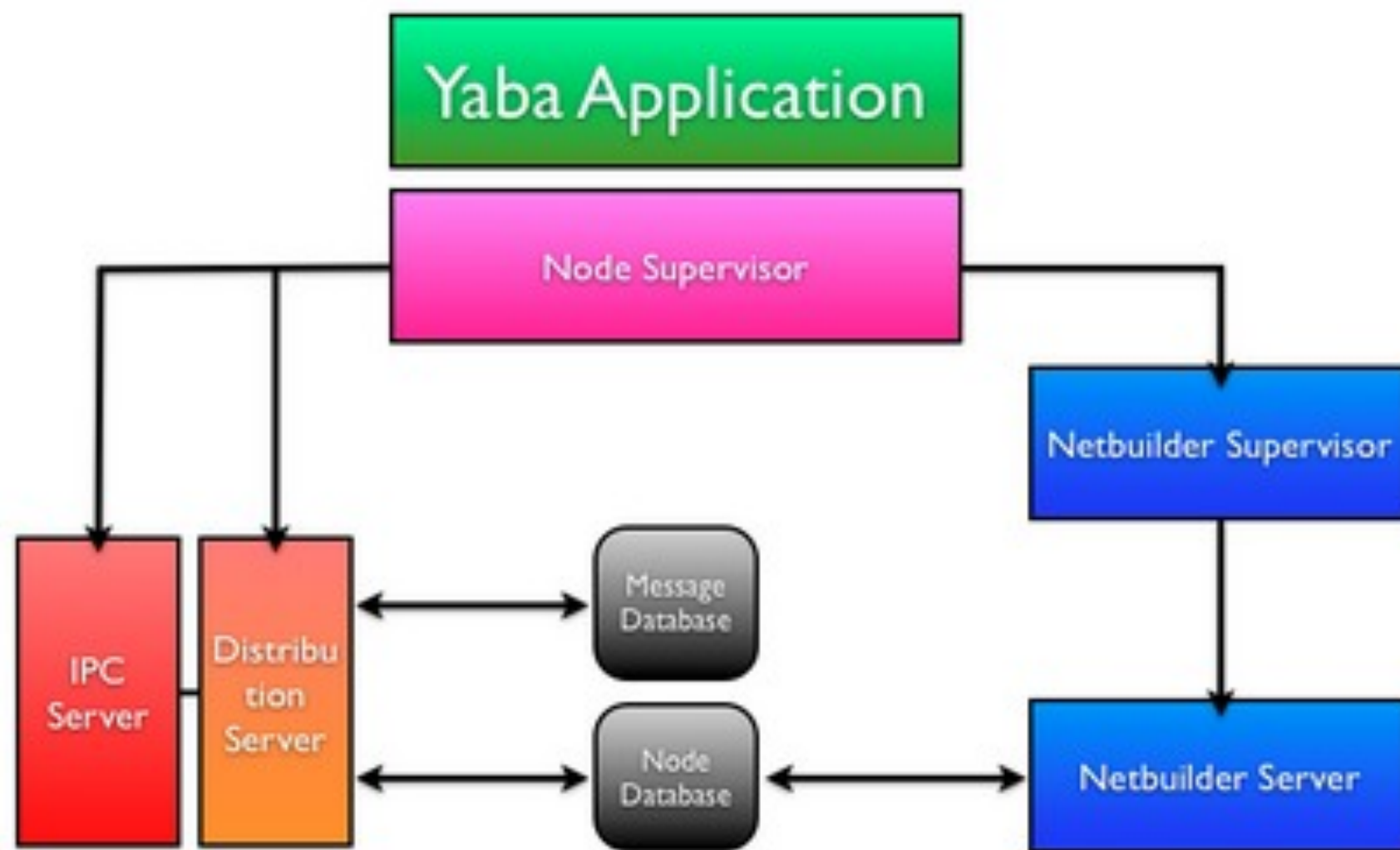


Demo

OTP/Supervisor

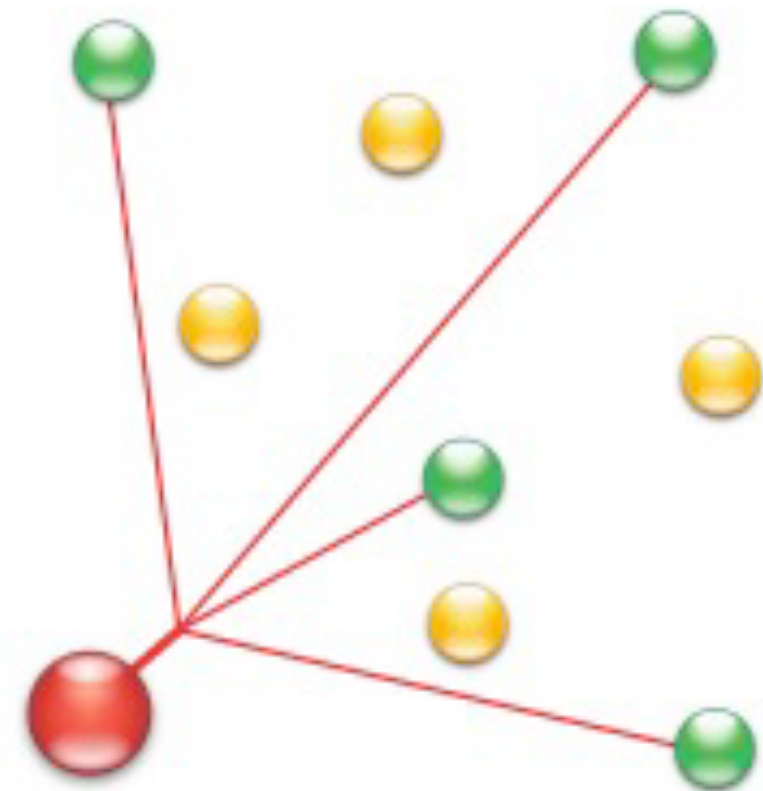
- Open Telecom Platform
- Supervisors
- Generic behaviours

Systembeskrivning



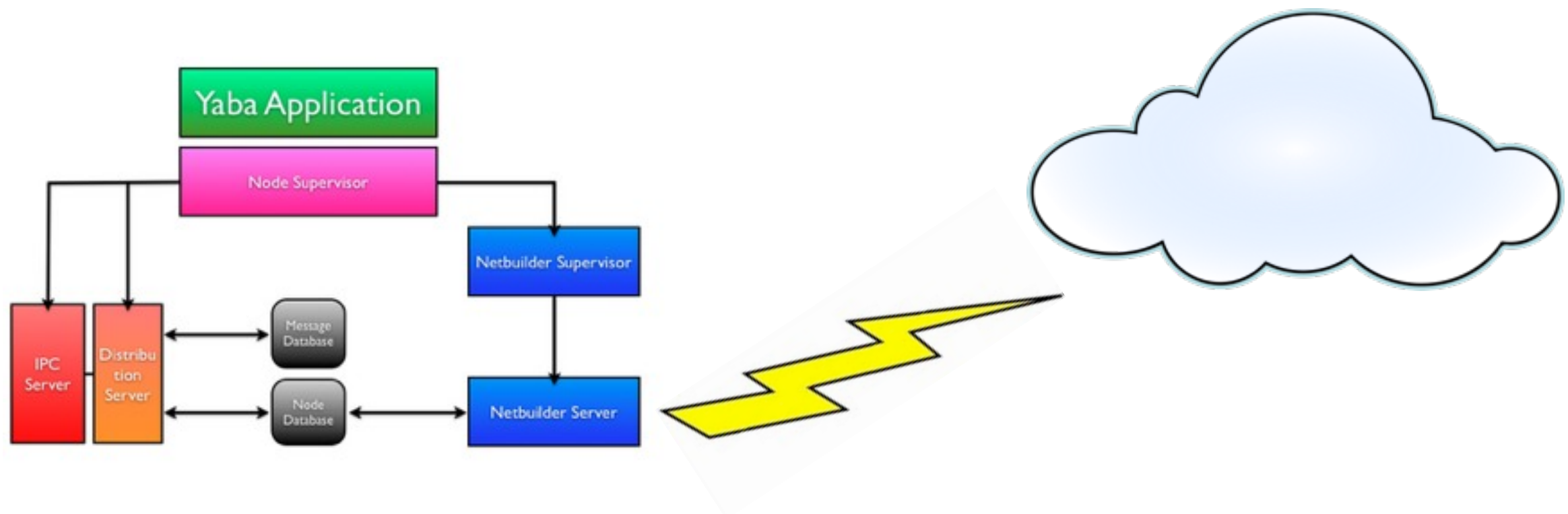
Multicast

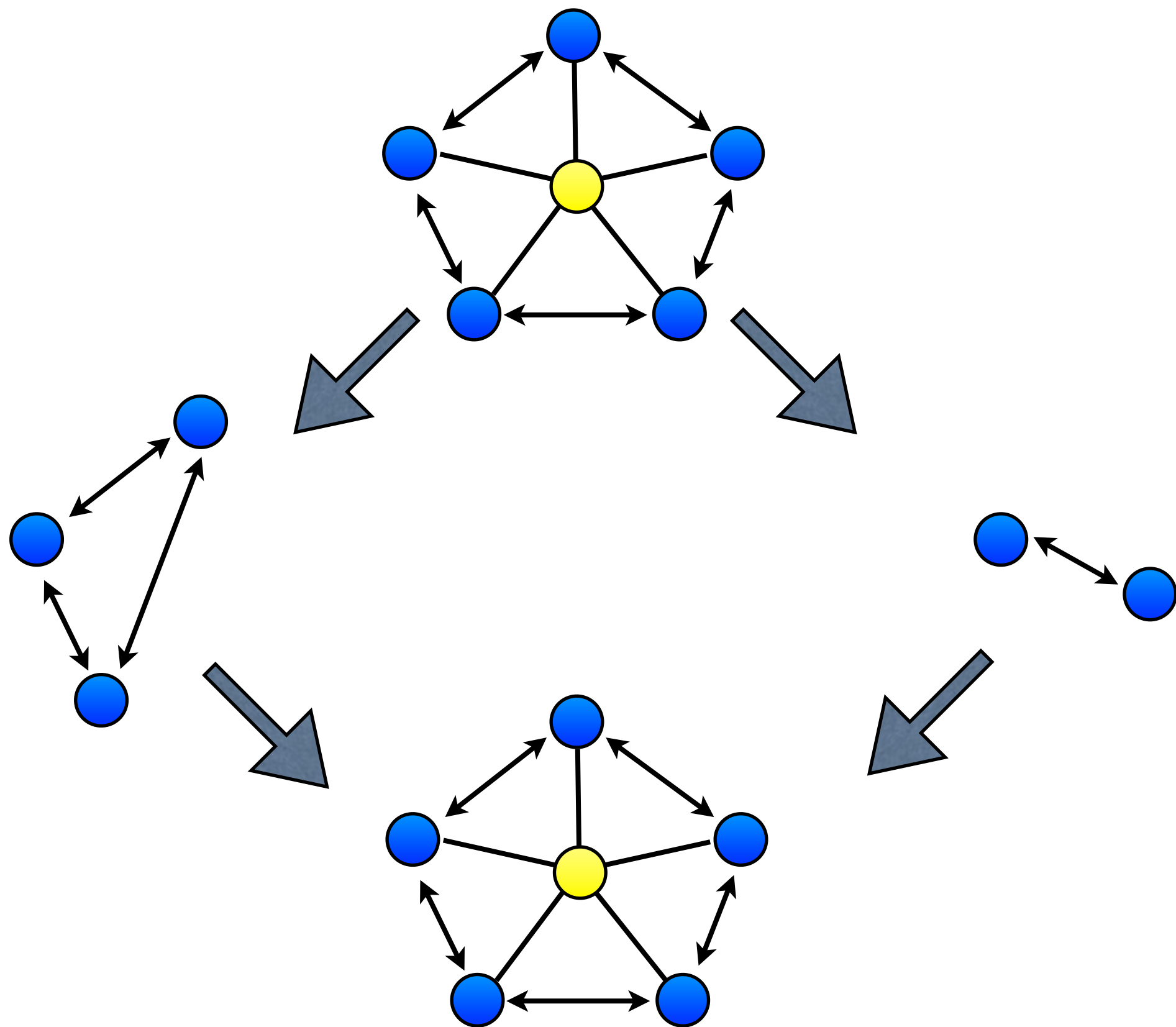
- 224.0.0.0-239.255.255.255
- 224.0.0.* Lokala nätverk
- IP-TV



Netbuilder

- Automatiskt nätuppbyggnad
- Multicast
- Net_kernel





- Visuell representation av stjärnnätverk
- Yaba node

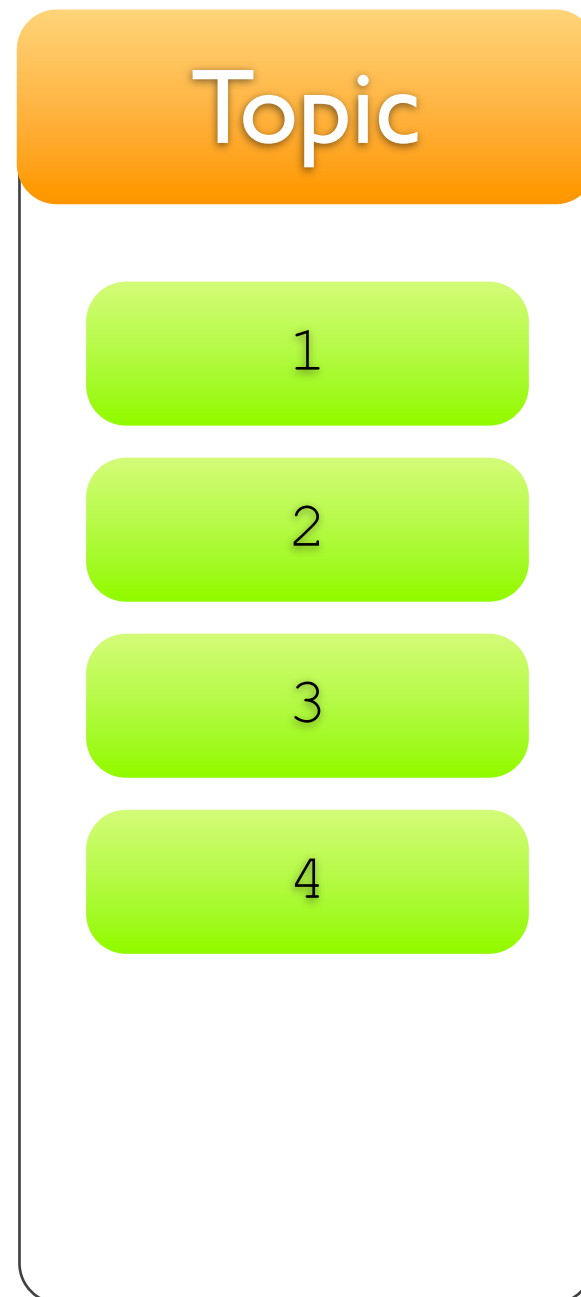
Distribution

- Fully meshed, alltså
 - Gå igenom listan över andra noder
 - Skicka meddelandet till varje nod

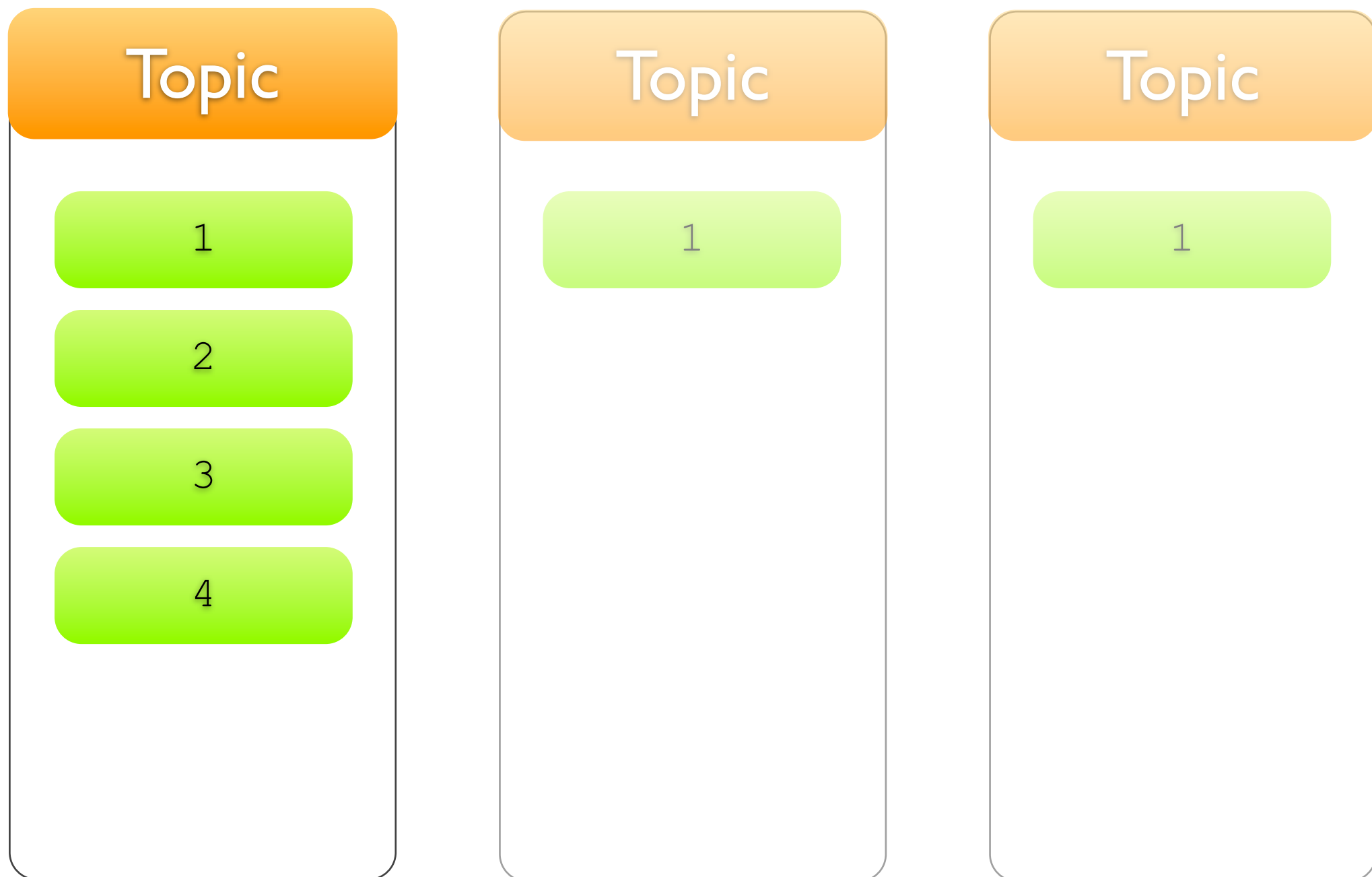
Meddelandehantering

```
{message,  
  {topic, id, timestamp, data}}
```

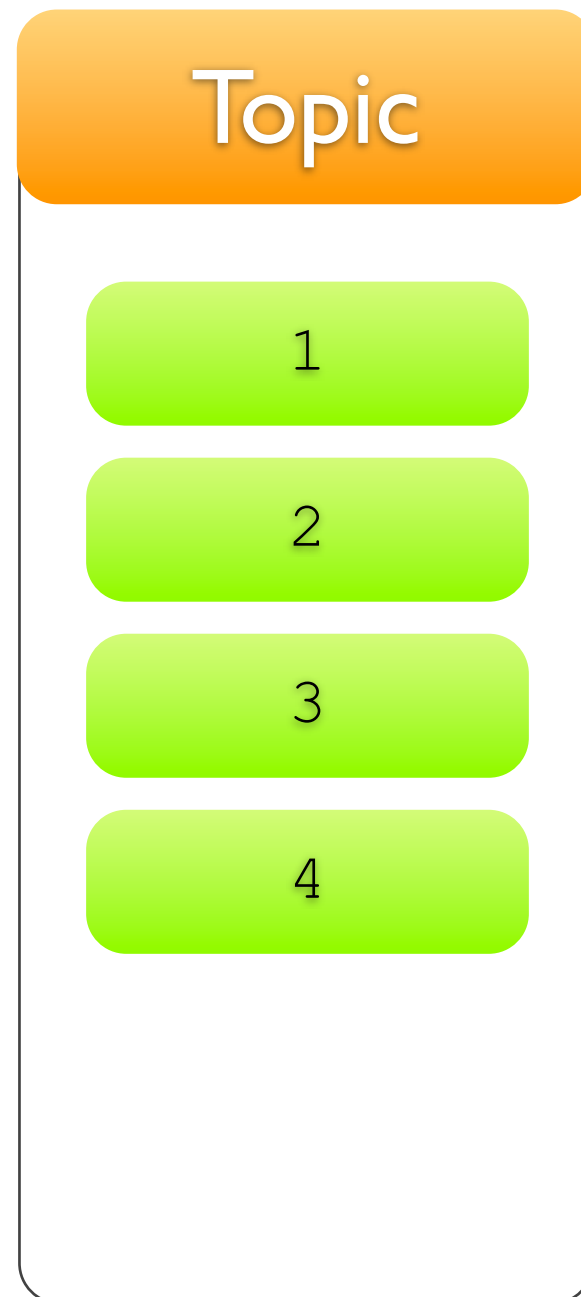

Roller av noder



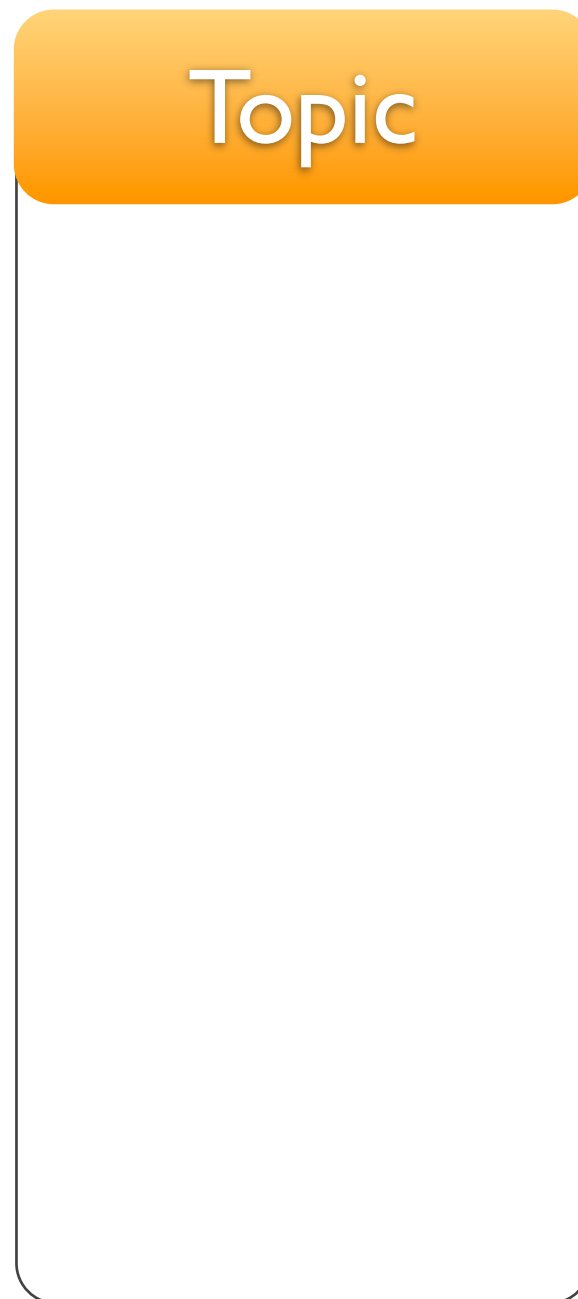
Roller av noder



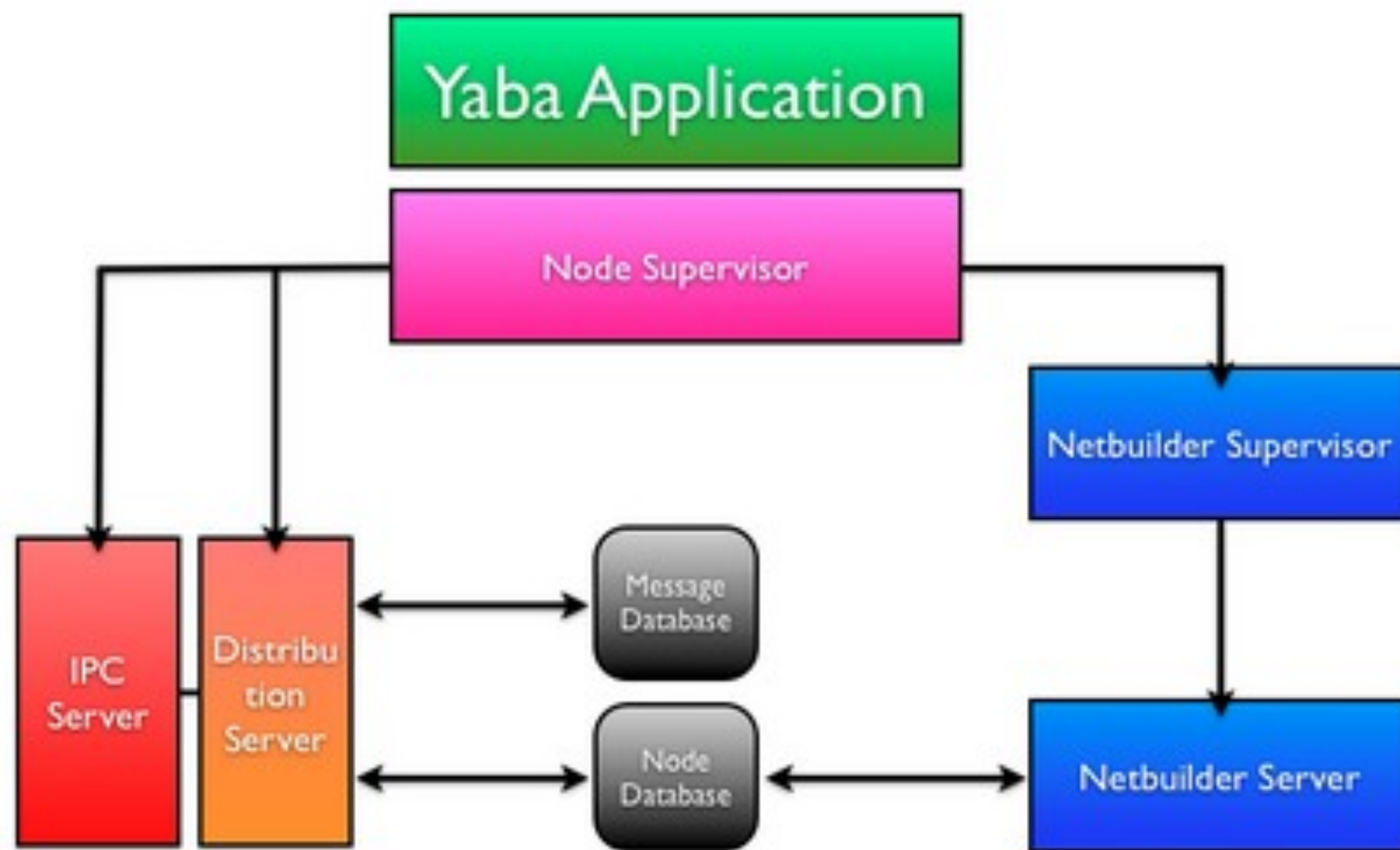
Roller av noder



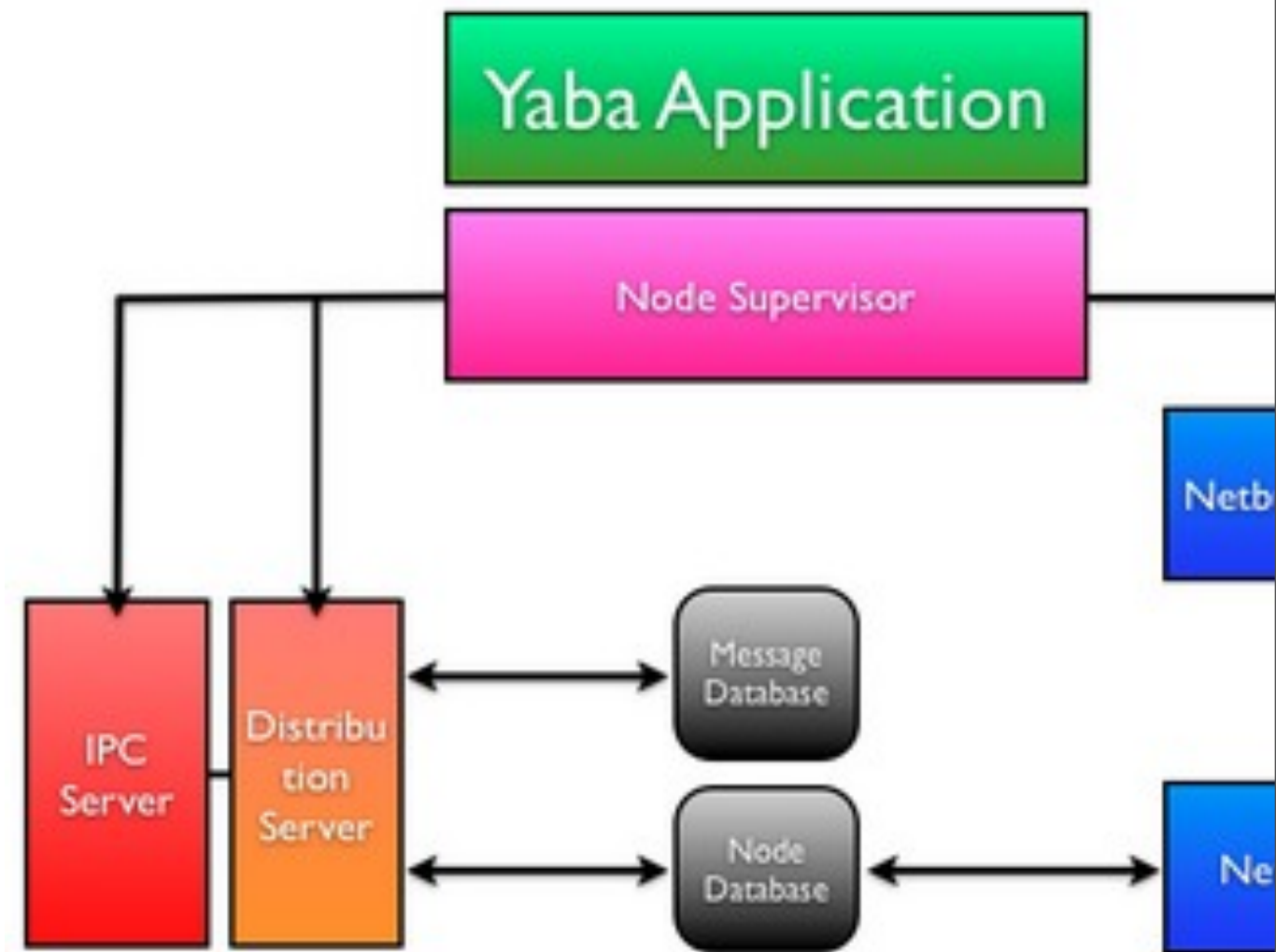
Roller av noder



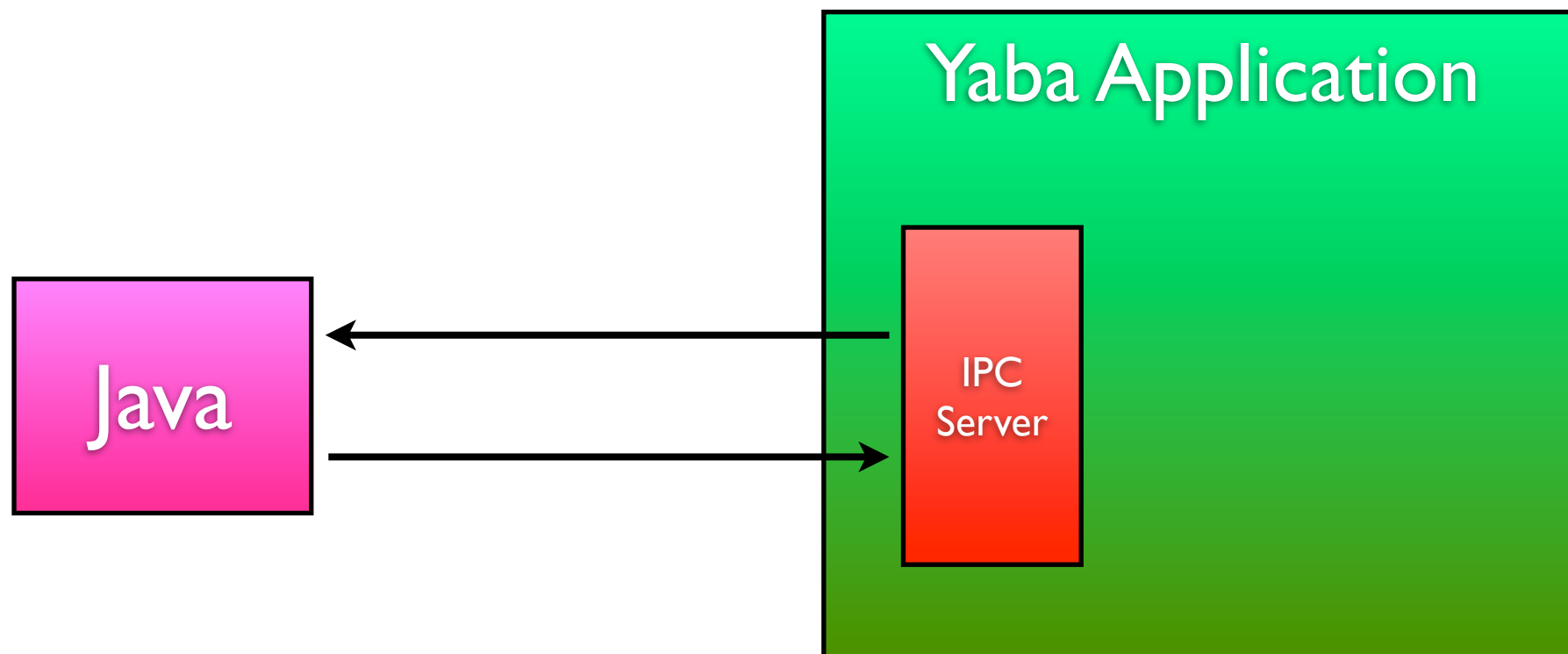
IPC



IPC



IPC



Relaterade system

- RabbitMQ
- OpenDDS
- Yaba har automatisk nätuppbyggnad

Utvecklingsmöjligheter

- Bättre feltolerans
- Revisionshistorik av publicerad data
- Noder som antar olika roller
 - Volatile
 - Non-volatile
 - Persistence
- Byta nättopologi från fully meshed
- Standardiserad data-marshalling

Frågor?