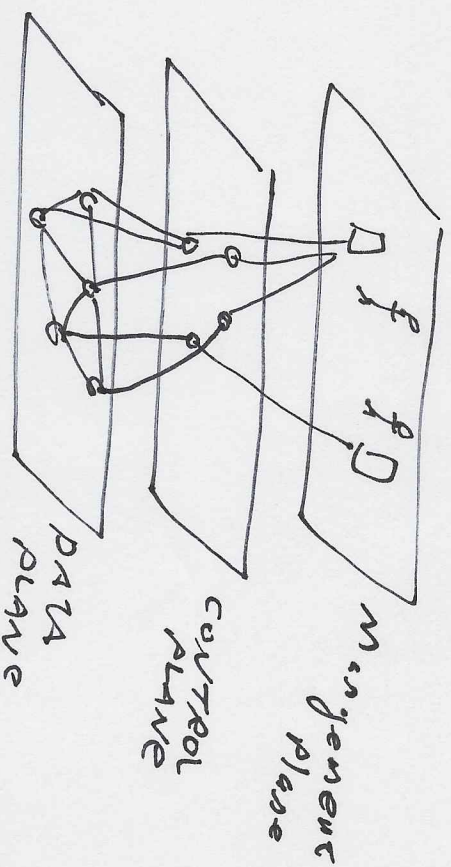
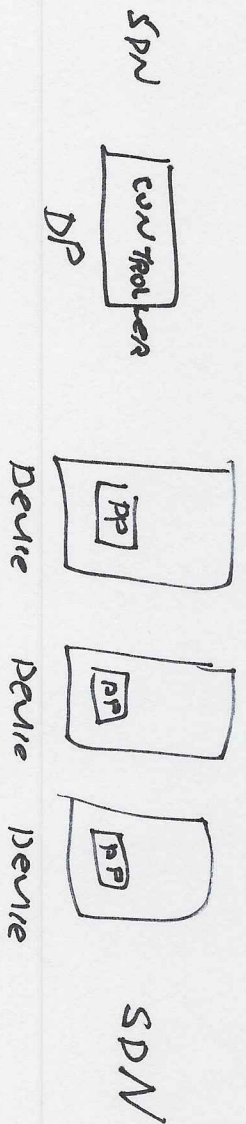
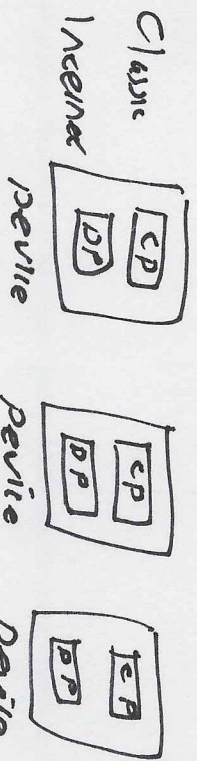


Software Defined Networks

SDN is an architecture and design strategy for designing programmable networks



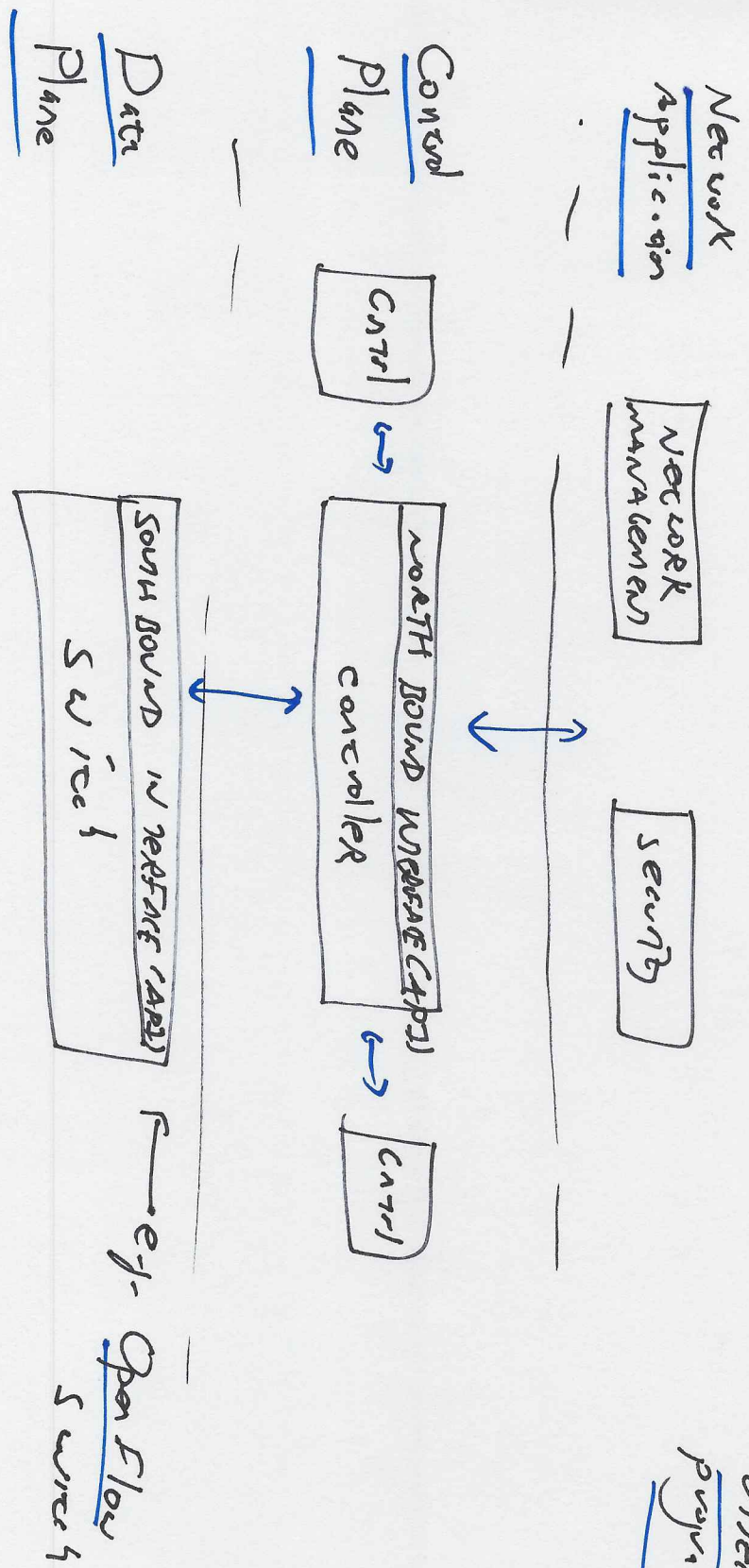
CP: Control Plane
DP: Data Plane



SDN 2

SDN "an emerging network architecture where the control is decoupled and separated from the forwarding mechanism and is

directly programmable"



[Open Flow interface is standard for info exchange between control + data plane.]

Forwarding ~~table~~ devices hold Flow table(s) plus abstraction layer that communicates with controller in secure manner.

Flow entries consist of:

Match Fields: Match every packet to desired action

Counter: Hold statistics of flow

Action: Instruction on how to handle matching packets

Table Miss Entry: If no match may drop packet

2/3/4/5/6/7/8/9/10/11/12/13/14/15/16/17/18/19/20/21/22/23/24/25/26/27/28/29/30/31/32/33/34/35/36/37/38/39/40/41/42/43/44/45/46/47/48/49/50/51/52/53/54/55/56/57/58/59/60/61/62/63/64/65/66/67/68/69/70/71/72/73/74/75/76/77/78/79/80/81/82/83/84/85/86/87/88/89/90/91/92/93/94/95/96/97/98/99/100	1/2/3/4/5/6/7/8/9/10/11/12/13/14/15/16/17/18/19/20/21/22/23/24/25/26/27/28/29/30/31/32/33/34/35/36/37/38/39/40/41/42/43/44/45/46/47/48/49/50/51/52/53/54/55/56/57/58/59/60/61/62/63/64/65/66/67/68/69/70/71/72/73/74/75/76/77/78/79/80/81/82/83/84/85/86/87/88/89/90/91/92/93/94/95/96/97/98/99/100
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→ continue to monitor forward packets
→ forward packets to controller

Network on Chip (NoC)

noc (4)

Problem: Chips not getting faster. (Moore's Law)

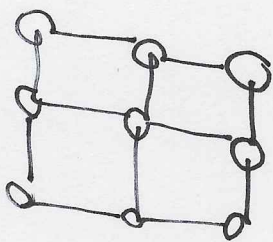
Solution: Use parallel processing many "cores" on

Forerunner: Systems on Chip (SOCs) same chip
Integrate many systems (processor/memory) on

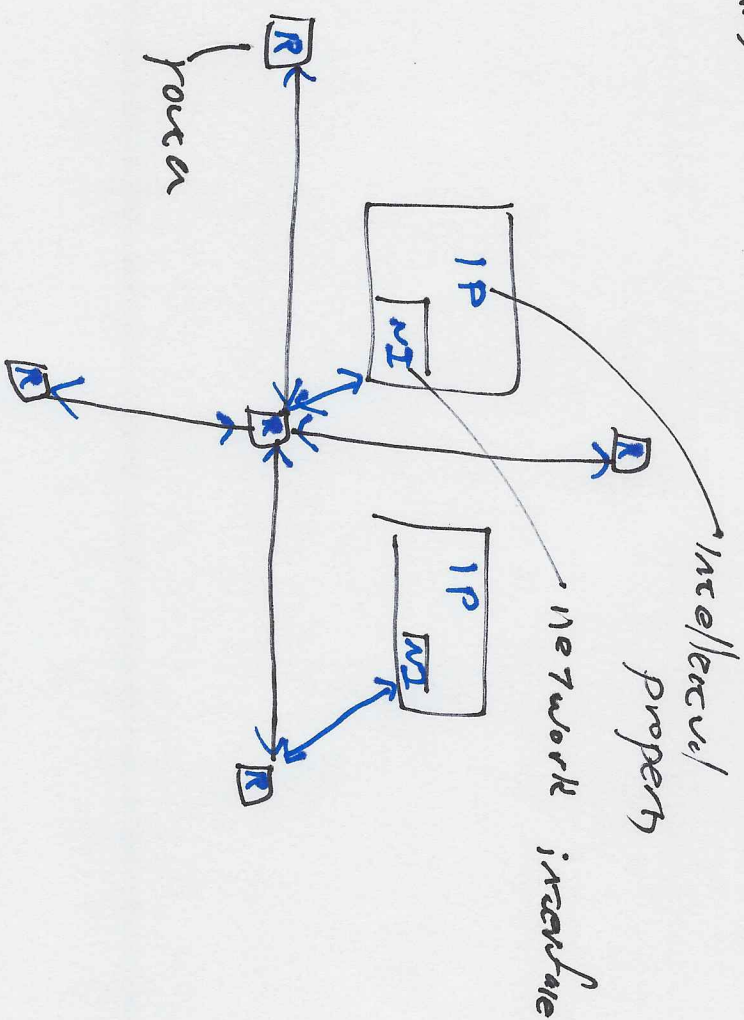
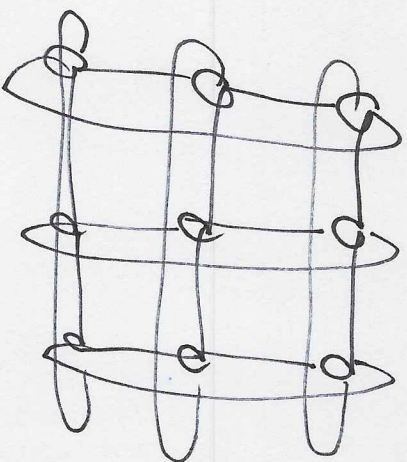
Class On Chip Communication:

Bus / Point to Point
Scalability a problem

mesh coplanar as planar

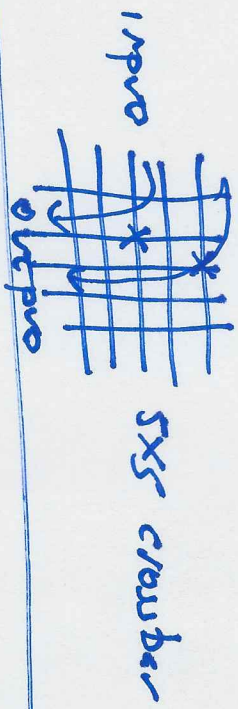


Torus

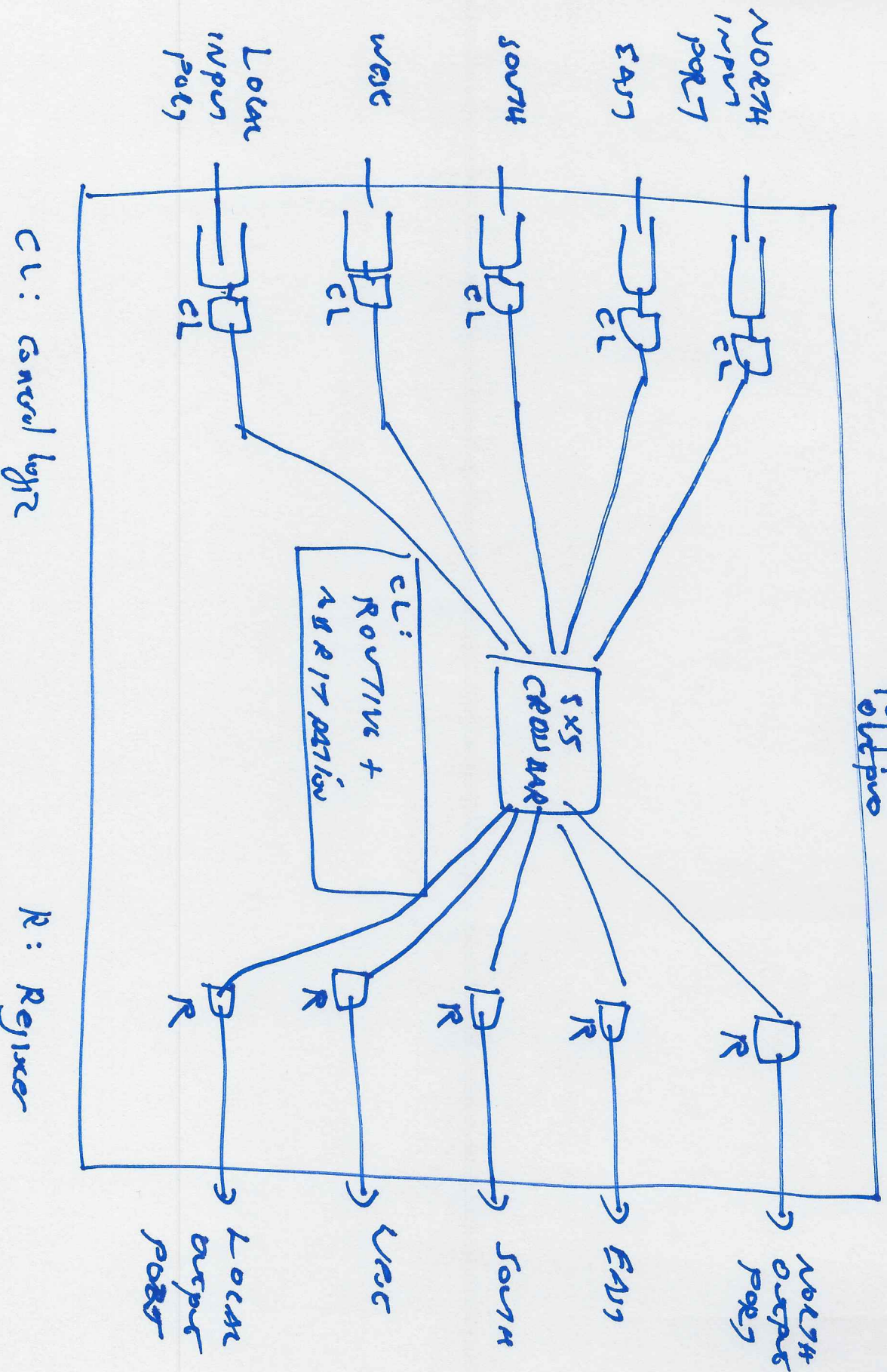


voc

Router In Mesh



to NtoC



Many Interconnected Neurons

Difference in - Number of Links

- Dimensions

- Pattern Width

- Node degree

- Are Distances between nodes

Many types:

N dimensions
 $k \downarrow$

Mesh, Torii, Chain, Rings

Hypercube, Binary, Deceas, Crossbar