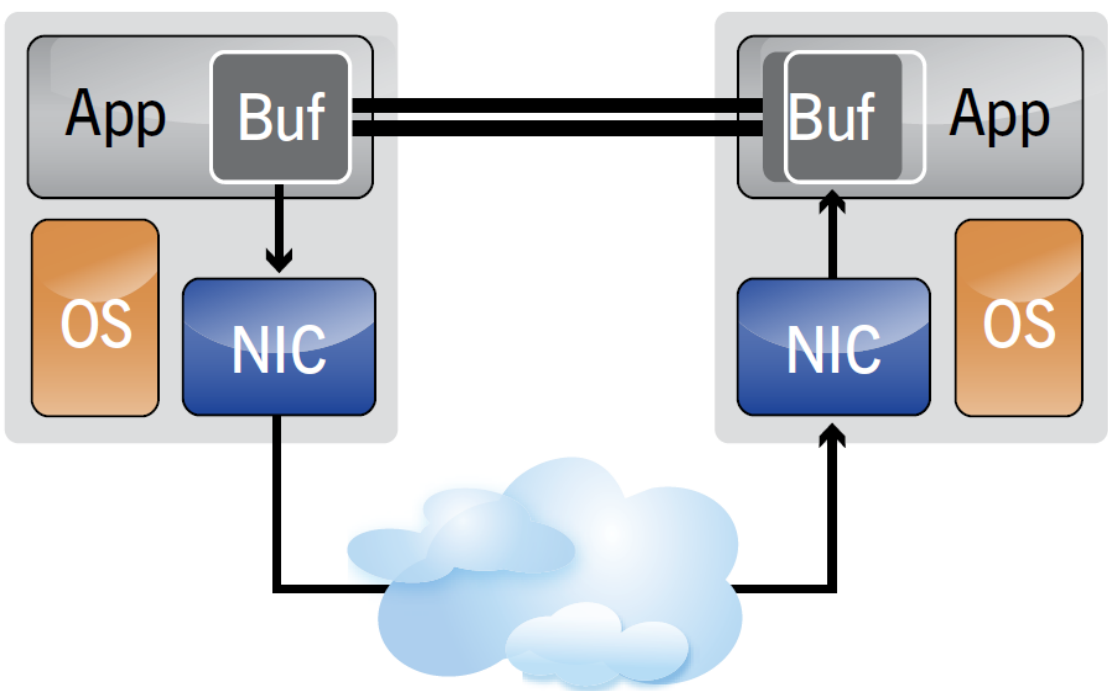


# InfiniBand Basics I

- Network Technology developed in 1999
- Is used for **high performance computing** and in enterprise datacentres
- Features are:
  - High Throughput
  - Low Latency
  - Quality of Service
  - Failover

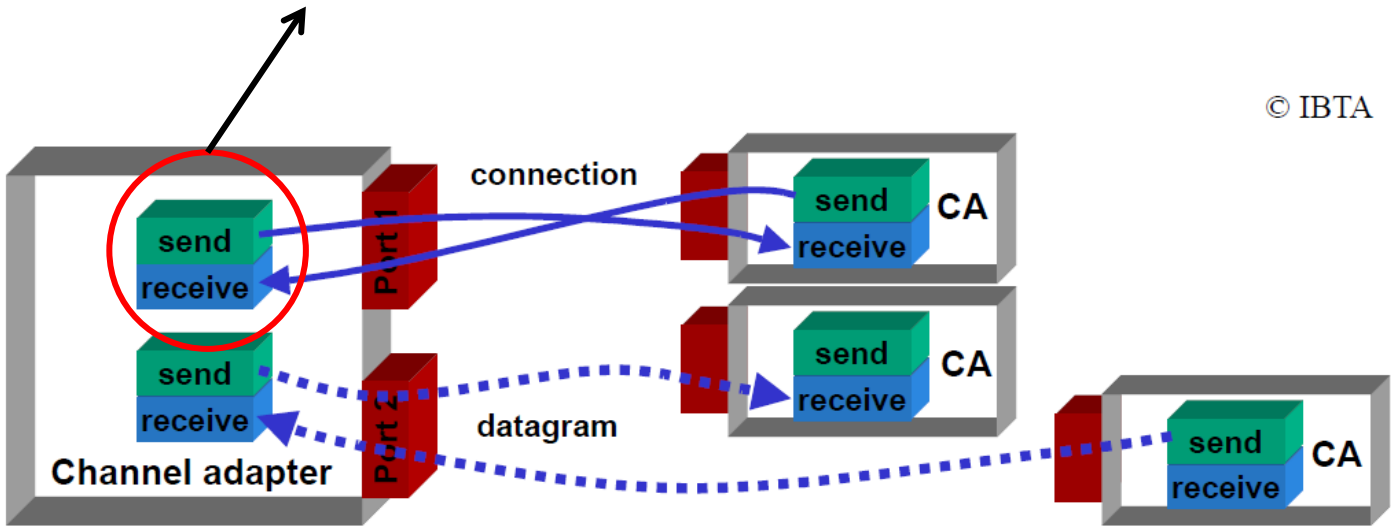
InfiniBand creates a channel directly connecting an application in its virtual address space to an application in another virtual address space

An application does not need to rely on the operating system to transfer messages.



# InfiniBand Basics II

## Queue Pair ( Send & Receive Completion Queue)



- Sender and Receiver communicate by exchanging **messages**

# InfiniBand

Question: - **Why?**

- What to do with ICCLab / Cloud Computing?

Answer: - Is part of the KIARA project (transport stack)  
- Idea came from project-partner DFKI\* which has an InfiniBand cluster available

\* Deutsches Forschungszentrum für Künstliche Intelligenz  
aus Saarbrücken

# KIARA InfiniBand Functionality

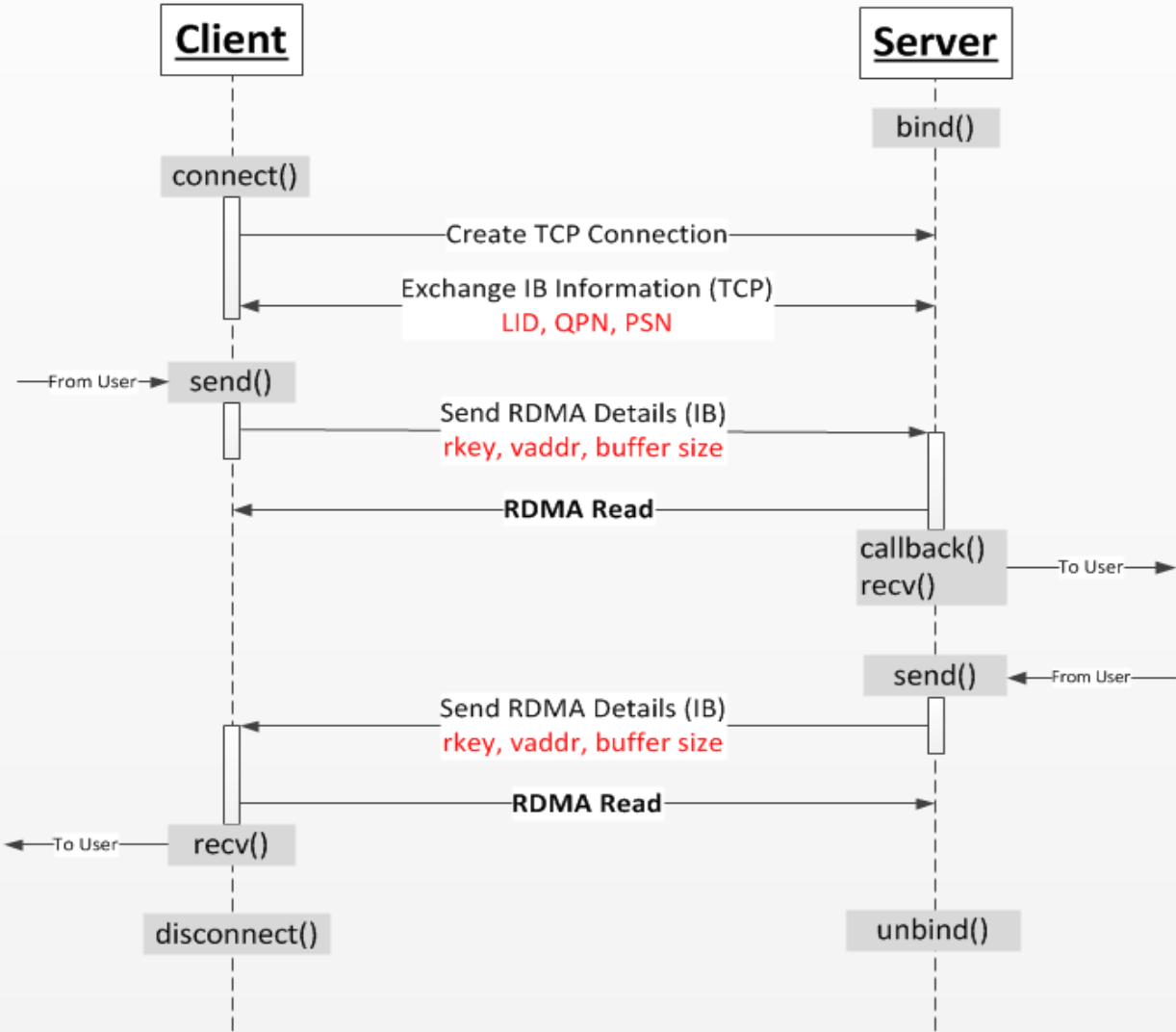
## Initial Situation:

- Not much information on InfiniBand resp. on how to write an InfiniBand application
- The only good tutorial (<http://thegeekinthecorner.wordpress.com/>) not usable
  - due to usage of RMDA Connection Manager (not working on Saarbrücken-Testbed)

## Done:

- Built 'Basic Example' out of '*rdma\_bw*' InfiniBand Perfctest-Application (C)
- Expanded 'Basis Example' to simple 'Client-Server Example' (C)
- Integrated functionality of 'Client-Server Example' into KIARA Transport-Stack (C++)
- Wrote 2 performance-test applications
  - 1 sends a lot of small messages
  - 1 sends bigger messages

# KIARA InfiniBand High Level Workflow



## Plan / ToDo:

- Adapt application to support more realistic / complex messaging-functionality:
  - Needs Discussion within ZHAW-KIARA-Team
- Write detailed description of how application works (Blogpost / Tutorial)
  - Wrote 1 Blog-Post. Maybe 2nd follows

## Possible Problems:

- Saarbrücken InfiniBand-Testbed not available anymore from April 2014
  - so far the servers are still working

## Additional Information:

- [Introduction Blog to InfiniBand](#)
- [Overview of KIARA InfiniBand Functionality](#)

Demo