Xilinx Virtual Cable 2014.3

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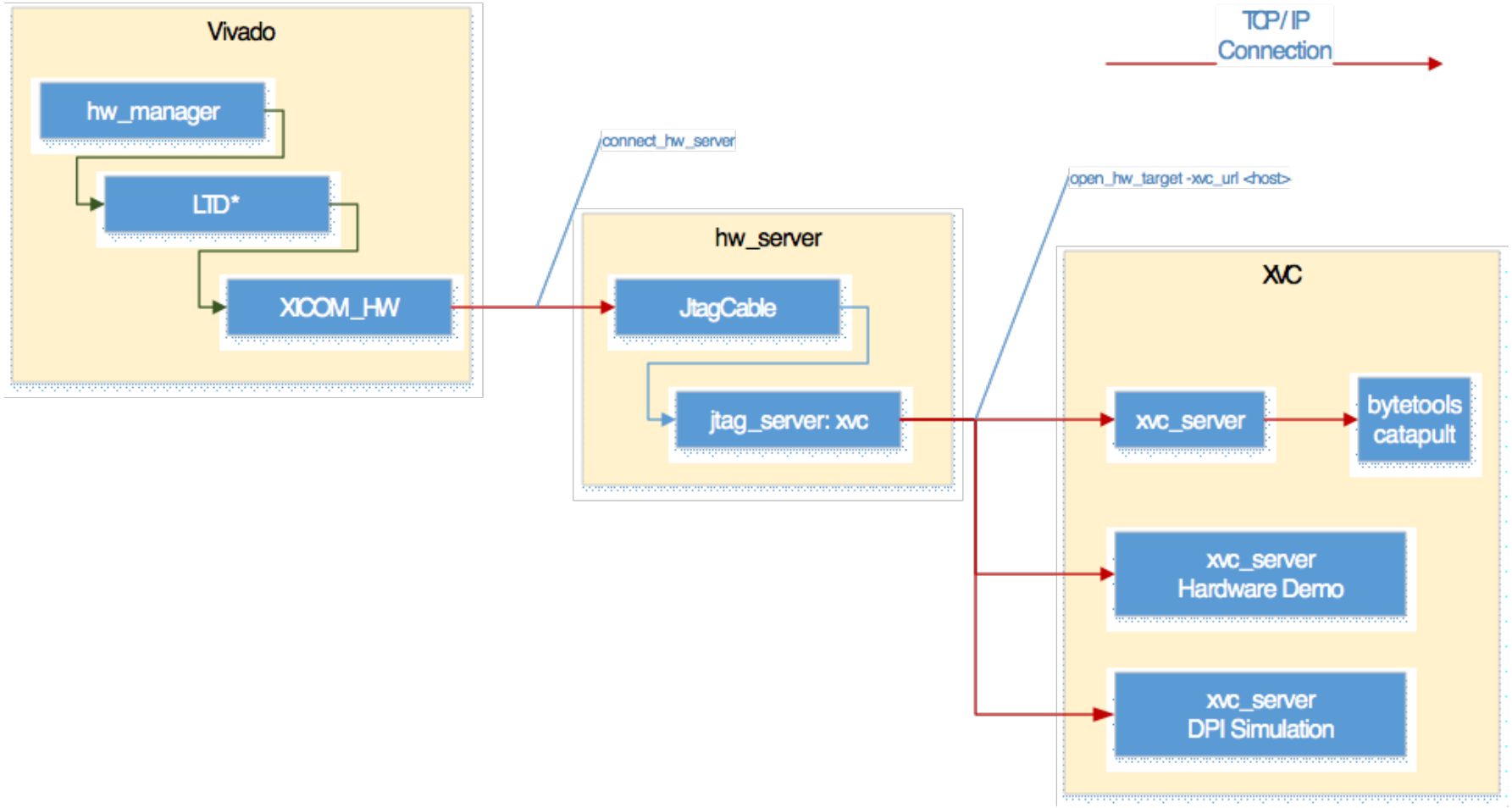
Overview

- **Xilinx Virtual Cable (XVC) provides a means to program and debug your FPGA design without using a USB or parallel configuration cable. This capability helps facilitate programming and debug of systems that:**
  - Have an FPGA in an inaccessible location
  - Require remote programming and debug of an FPGA
  - Do not have direct access to the FPGA pins – e.g. the JTAG pins are only accessible via a local processor interface

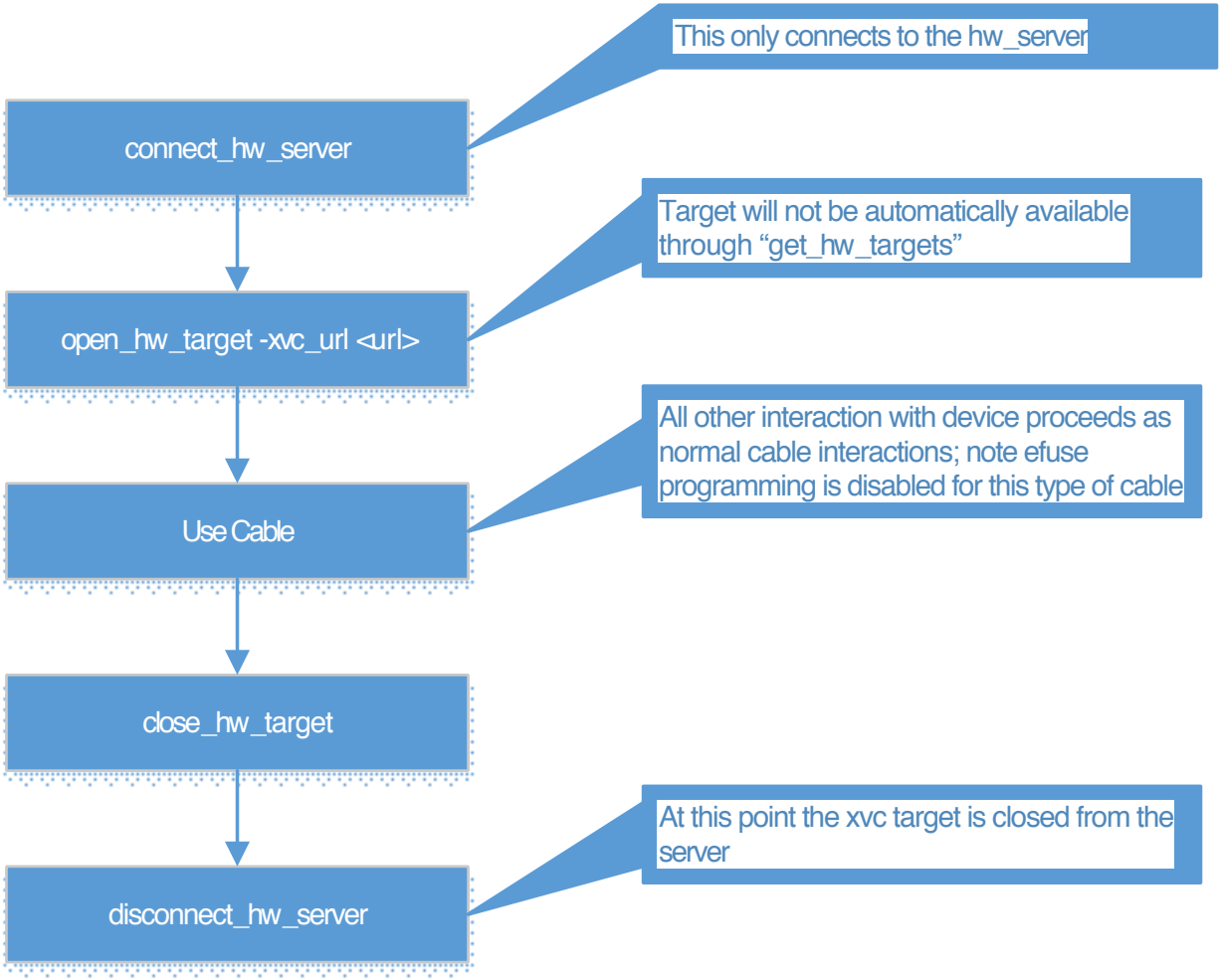
Key Features

- XVC is an internet-based protocol that acts like a JTAG cable
- Extensible to allow for safe, secure connections
- Debug and programming via Vivado hardware manager

System Block Diagram



System Connection Flow



Vivado TCL: open_hw_target

- **New option added to open_hw_target**

```
open_hw_target -xvc_url <url>
```

- **Operation Details:**
  - Option will open the target using the current_hw_server
  - Once opened, get_hw_targets shows the XVC target
  - XVC connection is closed when disconnect_hw_server is called, user will need to call open_hw_target to open connection back up
  - If hw_server already has an xvc_target open, then the xvc_target will be discovered like any other cable

Initializing hw_server with xvc connection

- When hw_server is initialized with an XVC connection Vivado discovers the cable just like any USB cable
- Start hw_server with these arguments

```
hw_server -e "set auto-open-servers xilinx-xvc:localhost:10200”
```

- The argument to the auto-open-servers argument is as follows
  - *xilinx-xvc:<xvc_ip/name>:<xvc_port>*

Debugging XVC

- XVC can be debugged by launching hw_server with the following arguments:

```
hw_server –L- -e "set xvc-log-level 1“
```

- The “-e” argument sets the XVC log level
- Log data is controlled through the –L

For more information…

- **Main XVC page:**
  - http://www.xilinx.com/products/intellectual-property/xvc.htm
- **Vivado Programming and Debug User Guide**
  - http://www.xilinx.com/support/documentation/sw_manuals/xilinx2014_3/ug908-vivado-programming-debugging.pdf