Simpler Redriver Flow
Does Not Need New Reserved Parameter
No Change To AMI_Init Signature
No Change To AMI Model Generation Tools

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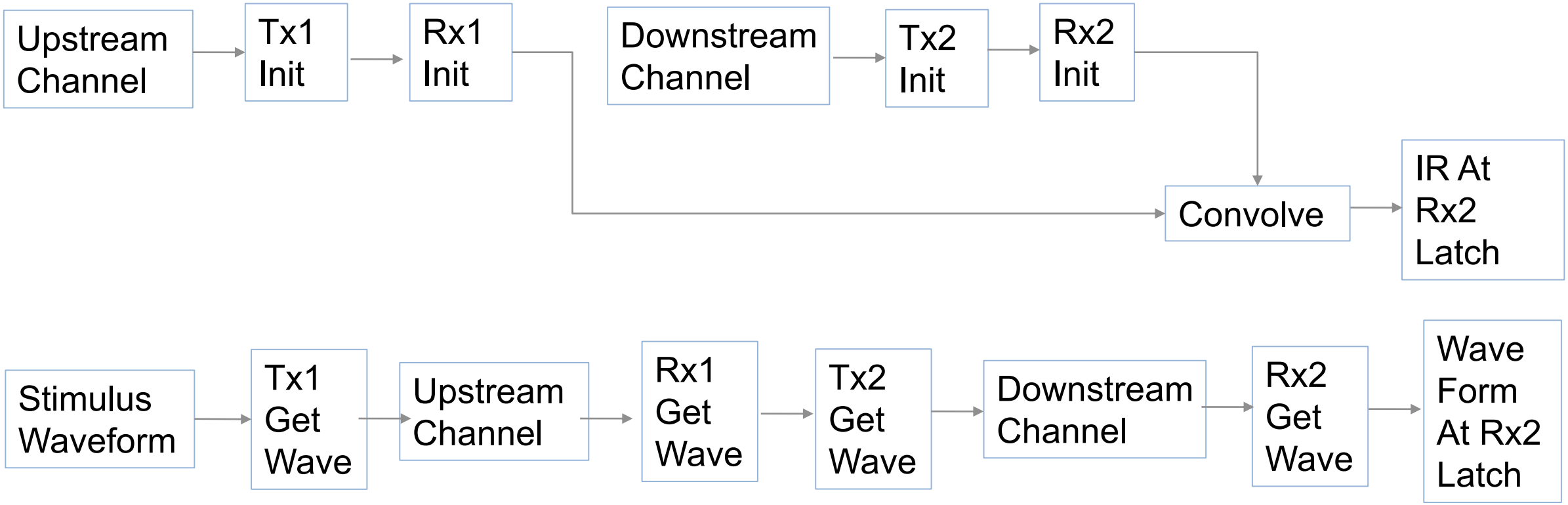
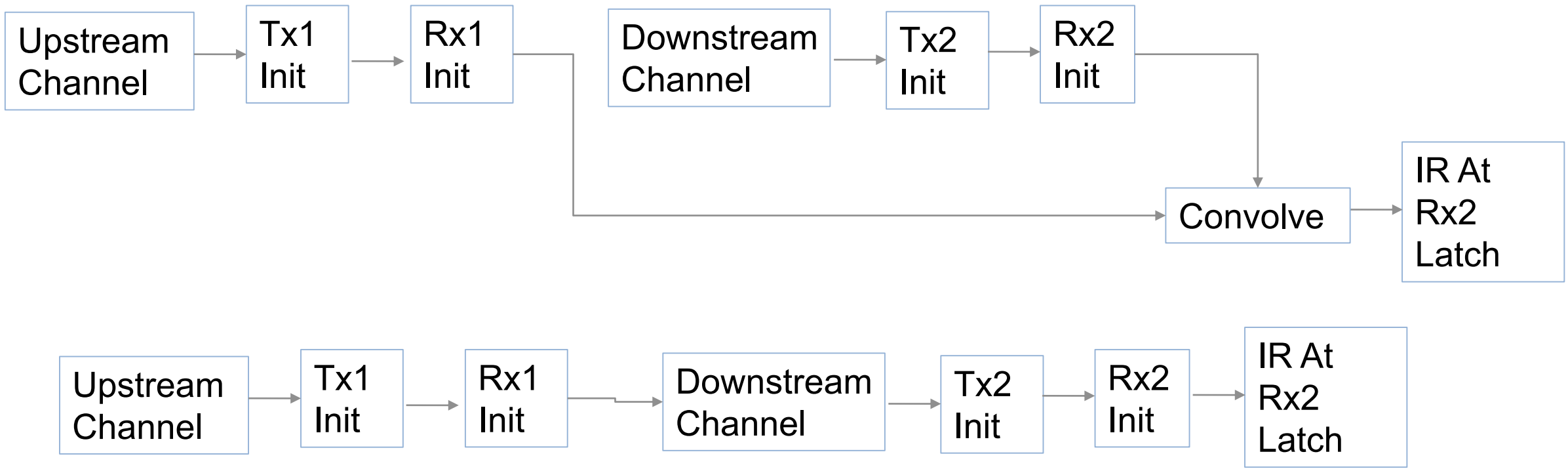
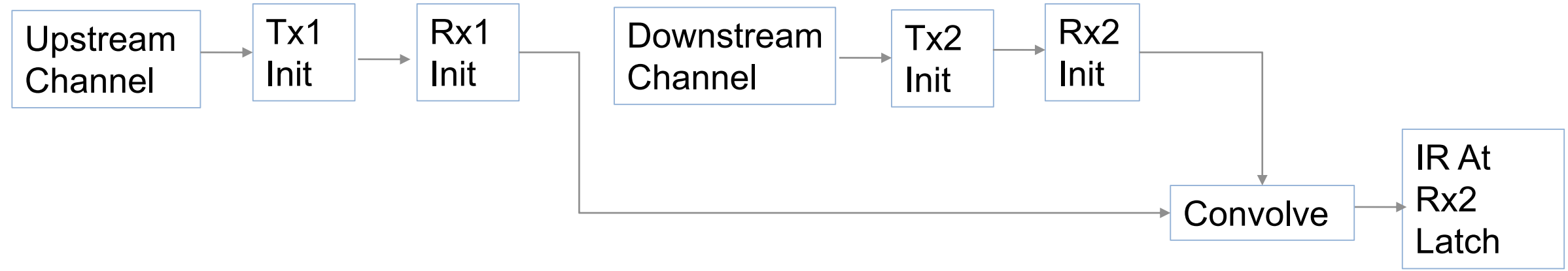
Current IBIS Redriver Flow
Column 1 of Impulse Matrix, and GetWave Flow

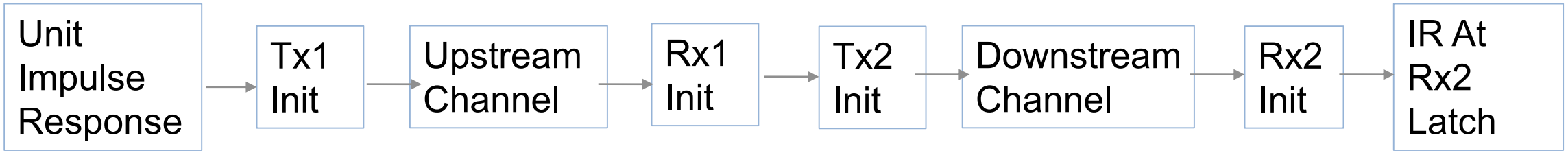


Old Init Flow and BIRD 166



Fangyi IBIS Redriver Flow BIRD210:
New AMI Reserved Parameter Use_IBIS7.1_Flow
Column 1 of Impulse Matrix; First New column of Impulse Matrix
Second New Column Returns Impulse Response of Equalization

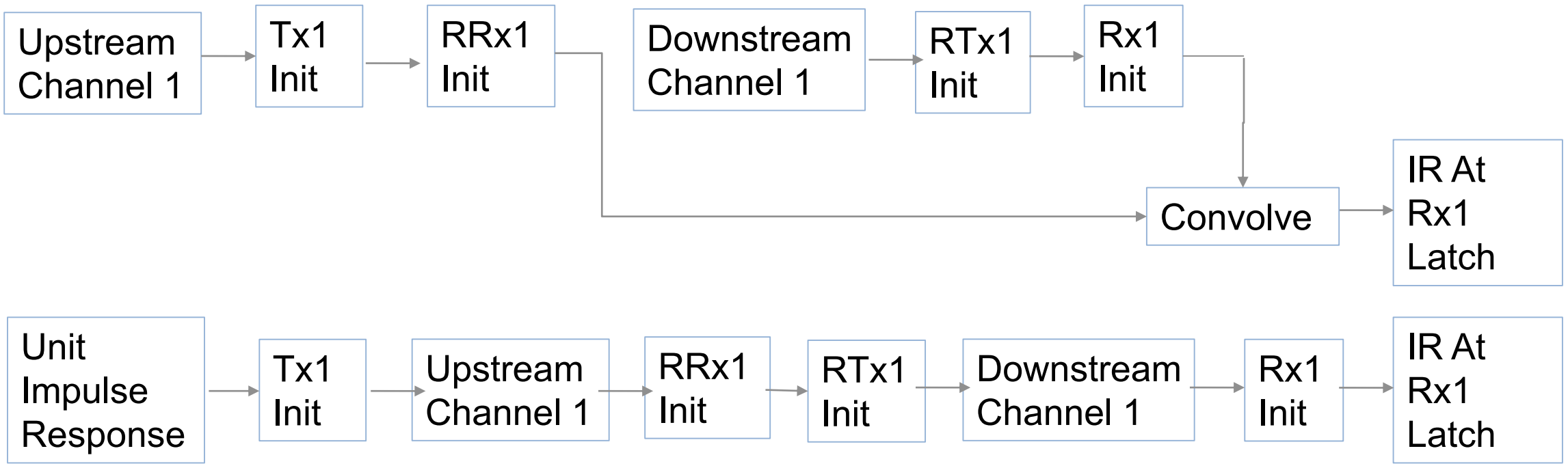




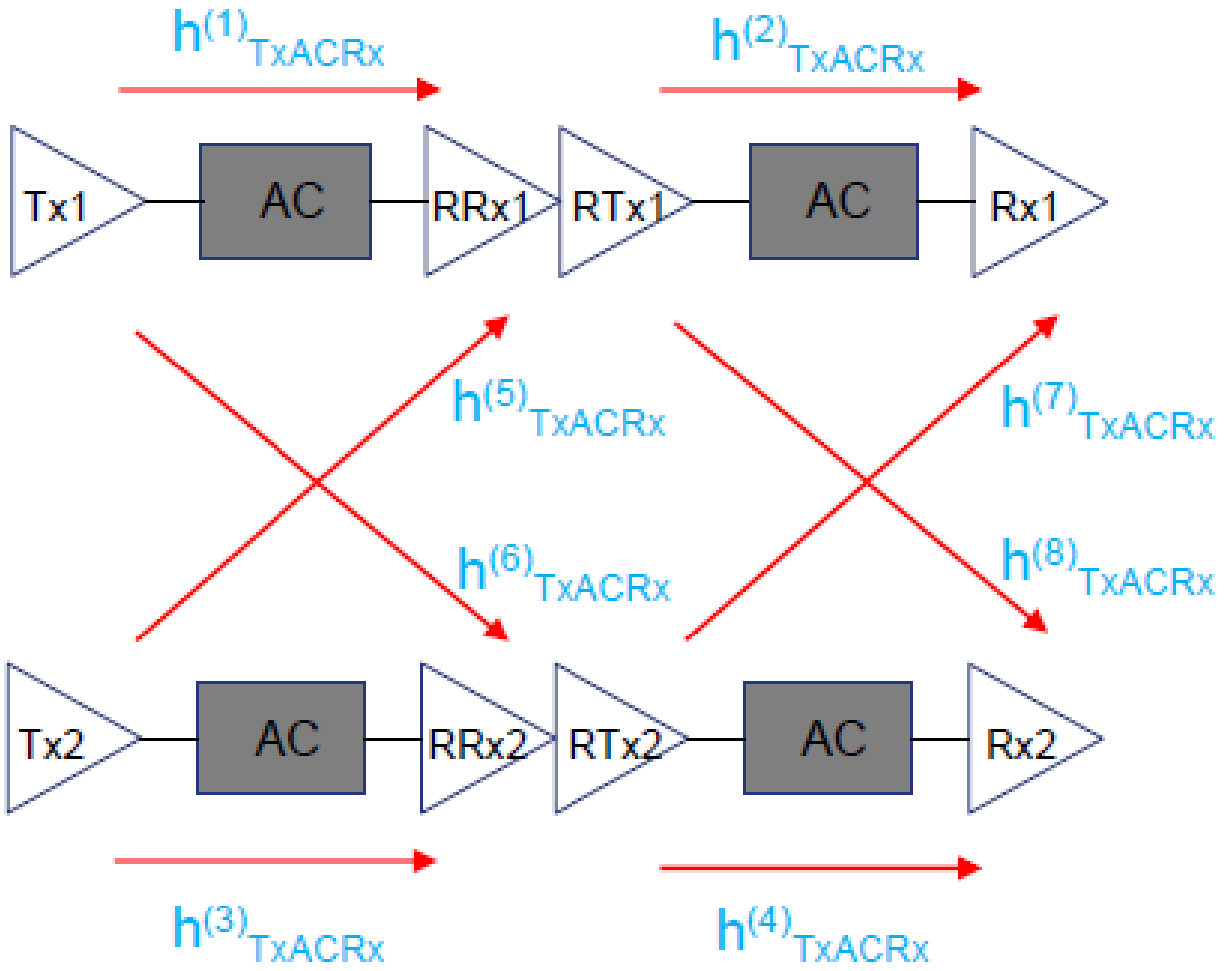
There Is No Need To Add The New Reserved Parameter Use_IBIS7.1_Flow To Use The New Flow For Any Existing Model That Has Init_Returns_Impulse=True

- The EDA tool is free two add one or two columns to the Impulse Matrix
- The AMI_Init function is expected to convolve the LTI part (equalization except for DFE) of its equalization to each aggressor column of the Impulse Matrix.
- The EDA tool can add a column that is initialized to a Unit Impulse Response, then that column in the Impulse Matrix output will be the LTI part of the equalization. This can be used to eliminate deconvolution for Init Only models in time domain simulations.
- The EDA tool can choose to use column, or add a column to the Impulse Matrix that follows the flow as indicated in the slide above.

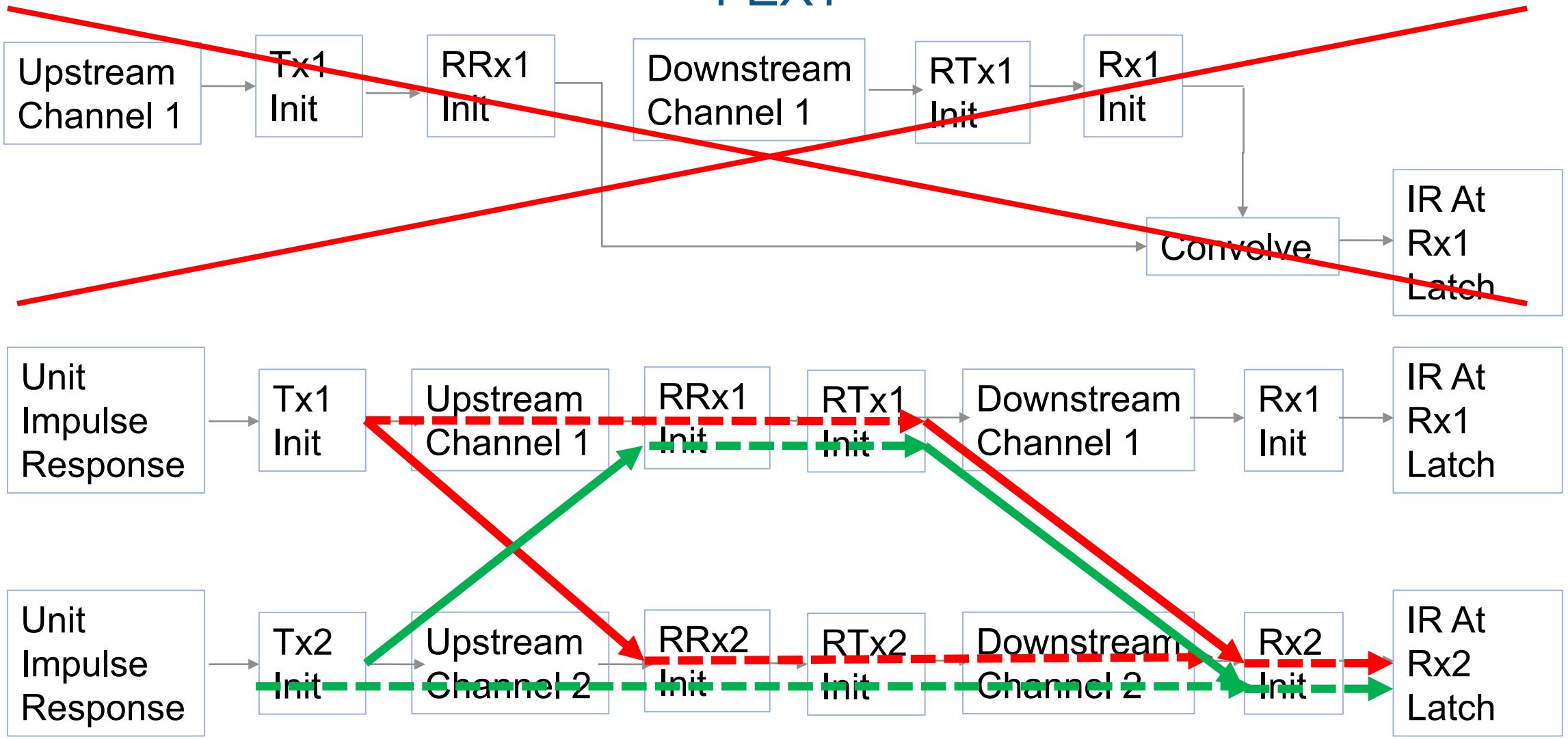
Proposed Redriver Flow BIRD “211” or 166.5 or 210.1
Replace Column 1 With Proposed Channel Column
No New Reserved Parameter



Proper Way To Do Crosstalk. From Fangyi Presentation

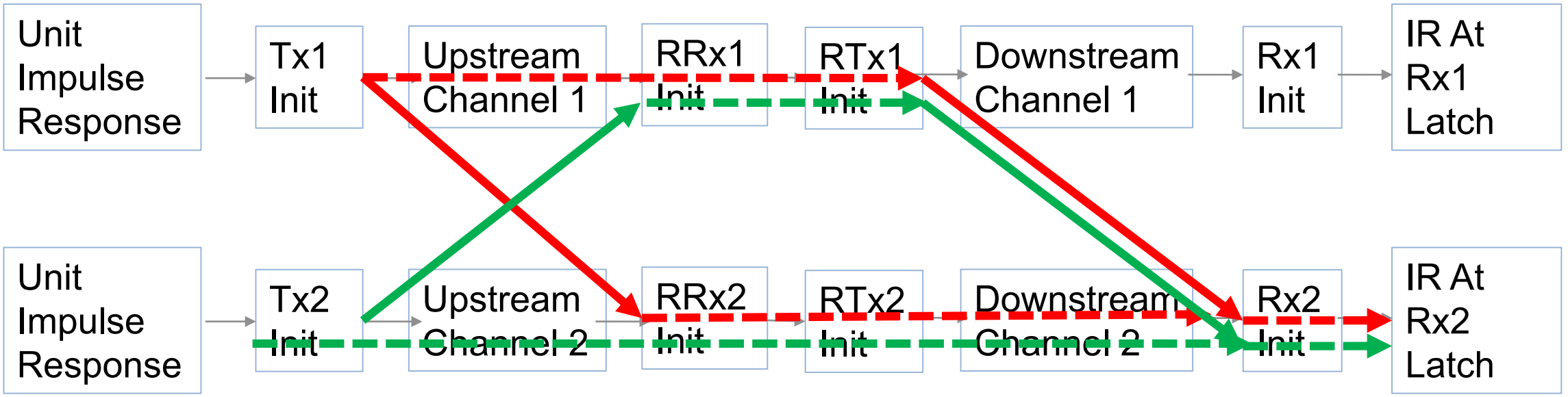


Showing All Crosstalk From Channel 1 Tx to Channel 2 Rx FEXT

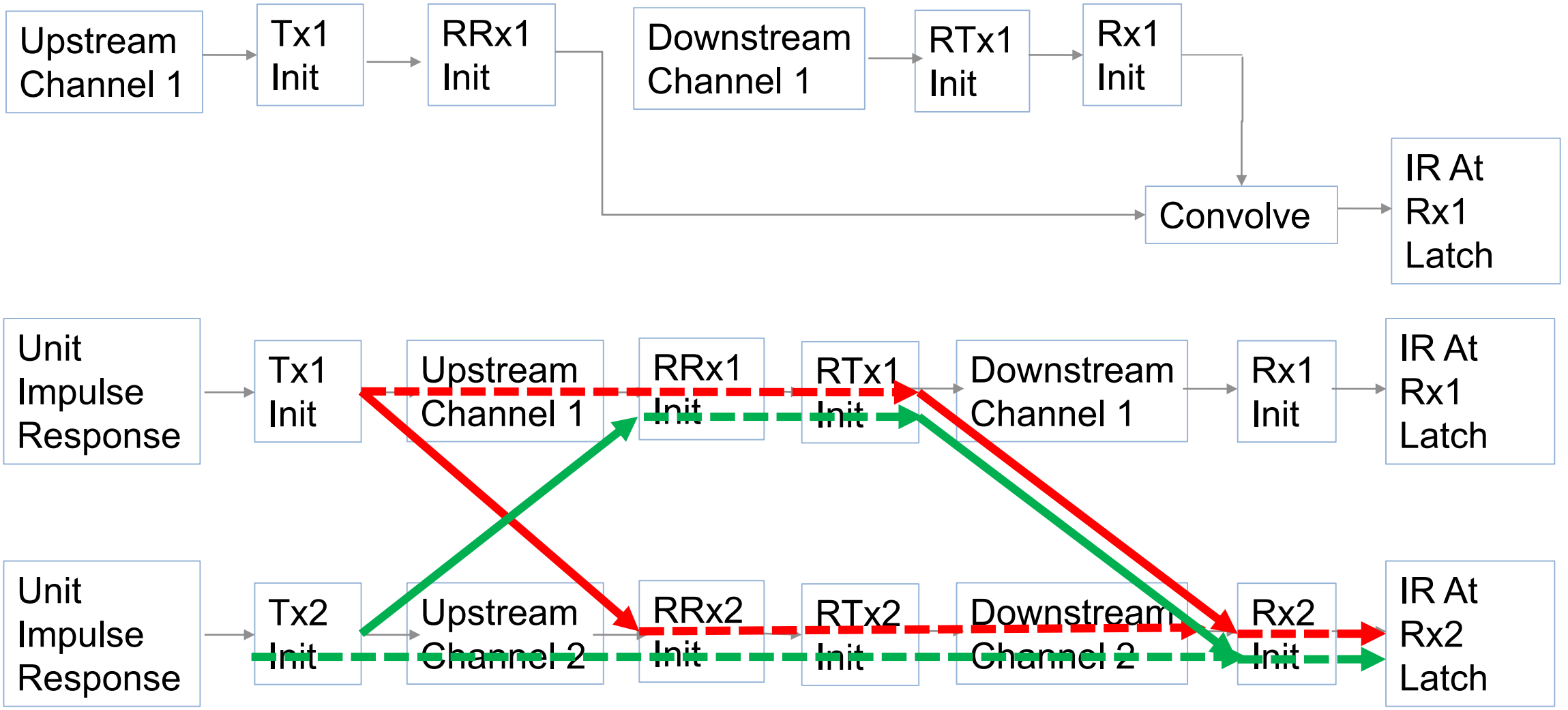


The Task Is To Document How Create The Impulse Matrix (2 Columns) At Rx2 Init

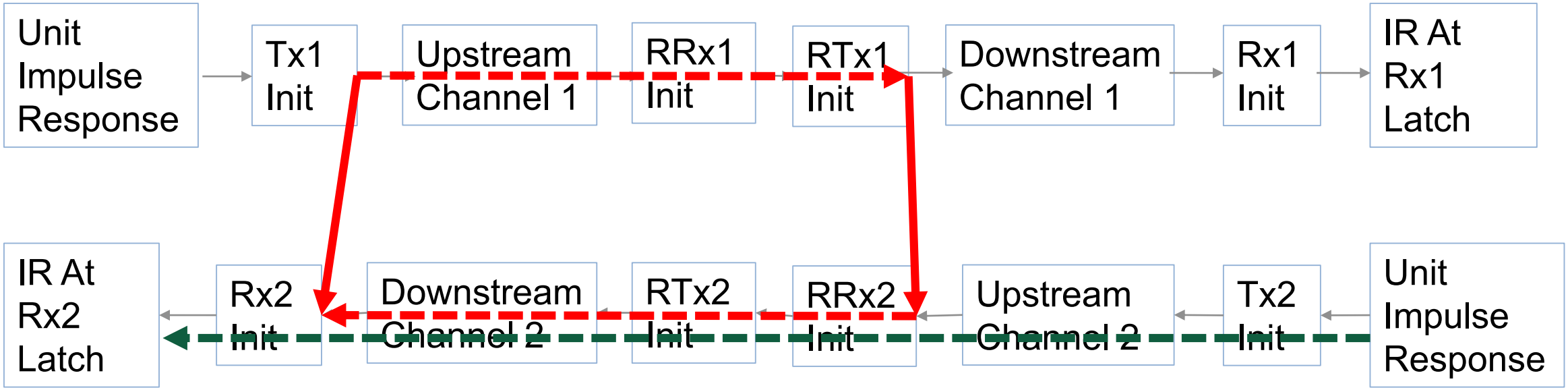
Solid Lines Are Convolutions By EDA Tool
Dashed Lines Are Convolutions By Model
IR At Same Color Arrows Are Added Together



There Is No Need For These Two Impulse Response Columns

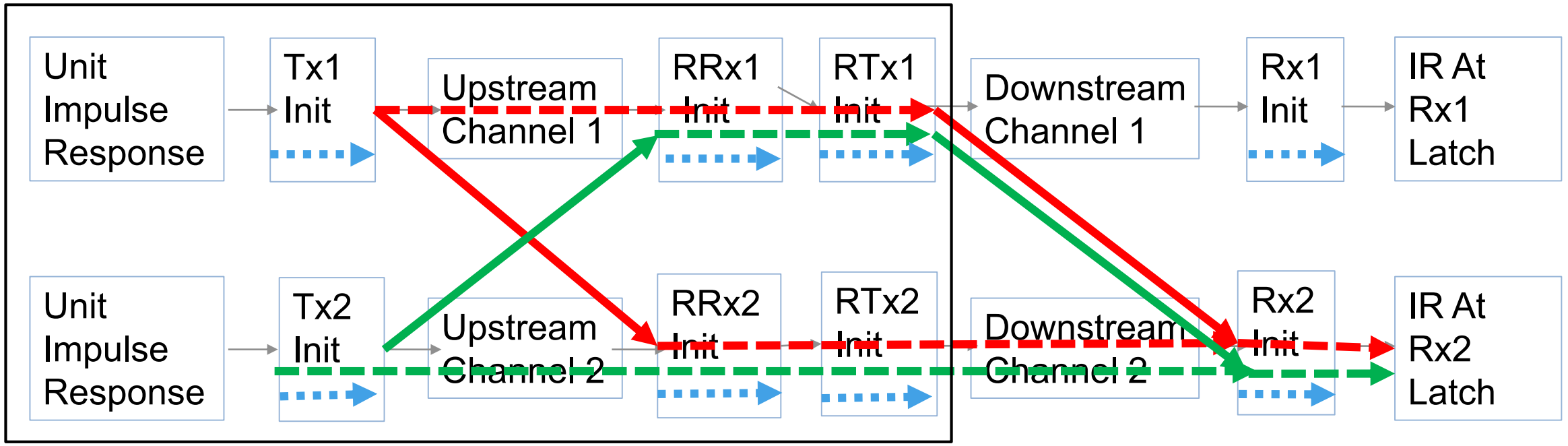


Showing All Crosstalk From Channel 1 Tx to Channel 2 Rx NEXT



An Even Simpler Approach Is To Run The Init Flow On All Through Channels Using One Aggressor Column To Generate Model Equalization

Run the through channel on all transfers from primary Tx up to terminal Rx
The second column of the Impulse Matrix input is always unit impulse response
All of the crosstalk paths are then calculated and combined at the input to the terminal Rx
Then the terminal Rx's are executed.



Recommendations

1. Change the Redriver Flow (as shown in slide 1.)
2. Let EDA tools handle crosstalk at their discretion
3. Note that Init Only models do not require deconvolution to emulate the missing AMI_GetWave function
4. For all of this to work, all models require that all the Init functions return a modified impulse response. The terminal Rx needs to get the correct impulse response output for the crosstalk columns (equalization without DFE).

Conclusions

- Proposed flow does not require a new reserved parameter.
- Proposed flow works perfectly well with legacy models.
- All models should have Init_Returns_Impulse=True
- Deconvolution is eliminated by the EDA tool adding an additional column initialized to a unit impulse response. This works on any legacy model that has Init_Returns_Impulse=True
- No need to change any AMI Model generation tools