JCTVC-M0309: Signaling of extended spatial scalability in SHVC

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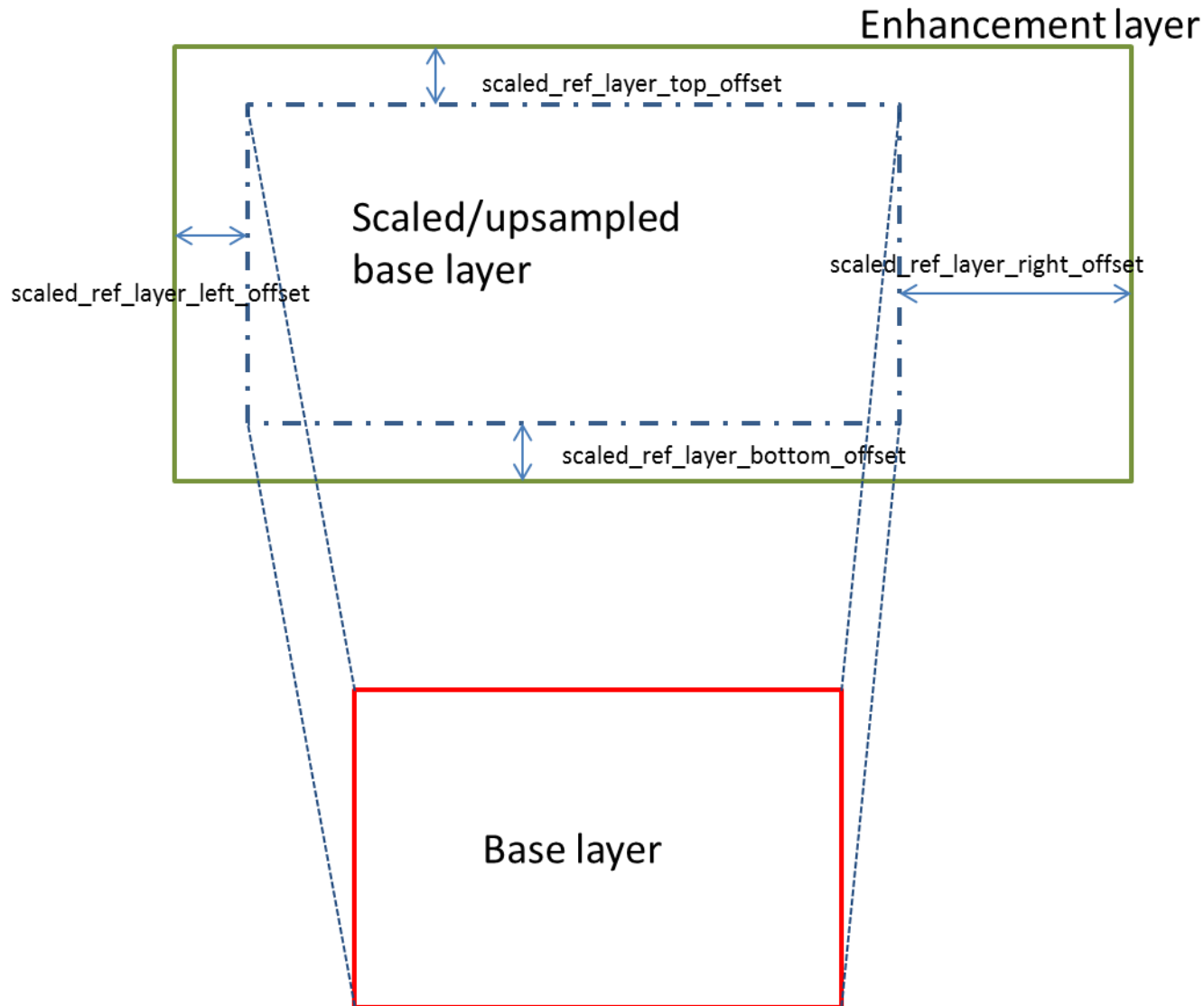Ying Chen, Vadim Seregin
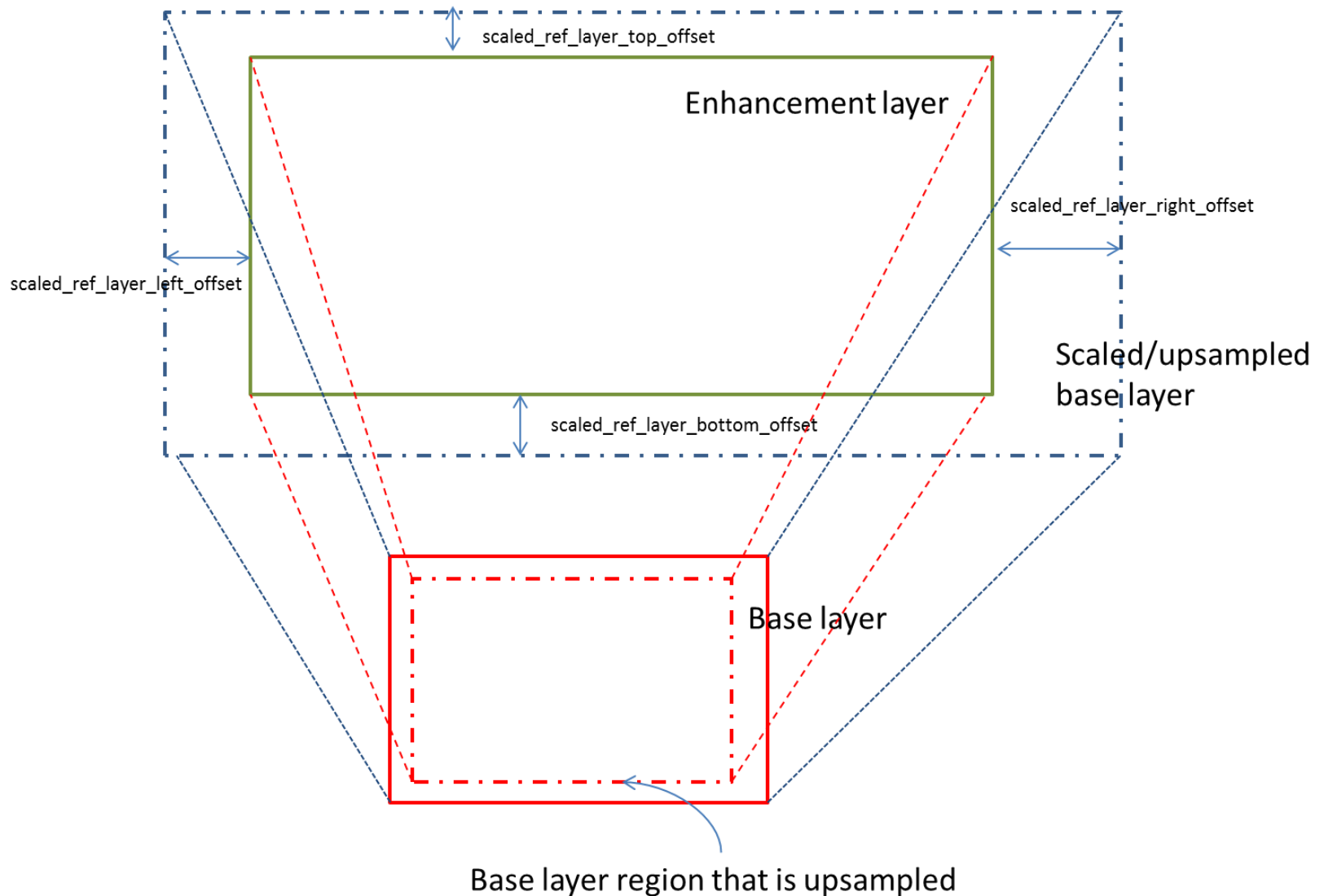
Qualcomm

Extended spatial scalability

- Supported in SVC

- Features
  - Specify part of EL corresponds to upsampled base layer
  - Specify region of base layer to be upsampled to EL

- Proposed support in SHVC
  - Signaling in VPS

vps_extension( ) {	Descriptor
…	
for(i = 0; i <= vps_max_layers_minus1; i++)	
for(j = 0; j < NumDirectRefLayers[i]; j++) {	
scaled_ref_layer_left_offset[i][j]	se(v)
scaled_ref_layer_top_offset[i][j]	se(v)
scaled_ref_layer_right_offset[i][j]	se(v)
scaled_ref_layer_bottom_offset[i][j]	se(v)
}	
…	
}	

Positive offsets: Upsample entire base layer to the entire EL

Enhancement layer

scaled_ref_layer_top_offset

Scaled/upsampled
base layer

scaled_ref_layer_left_offset

scaled_ref_layer_right_offset

scaled_ref_layer_bottom_offset

Base layer

Negative offsets: Upsample part of base layer to the entire EL

scaled_ref_layer_top_offset

Enhancement layer

scaled_ref_layer_right_offset

scaled_ref_layer_left_offset

Scaled/upsampled base layer

scaled_ref_layer_bottom_offset

Base layer

Base layer region that is upsampled

Padding

- Padding using the boundary pixels of the upsampled picture

Thank you