
JCTVC-AC0031: ON STATIC REGIONS FOR REGION-WISE PACKING

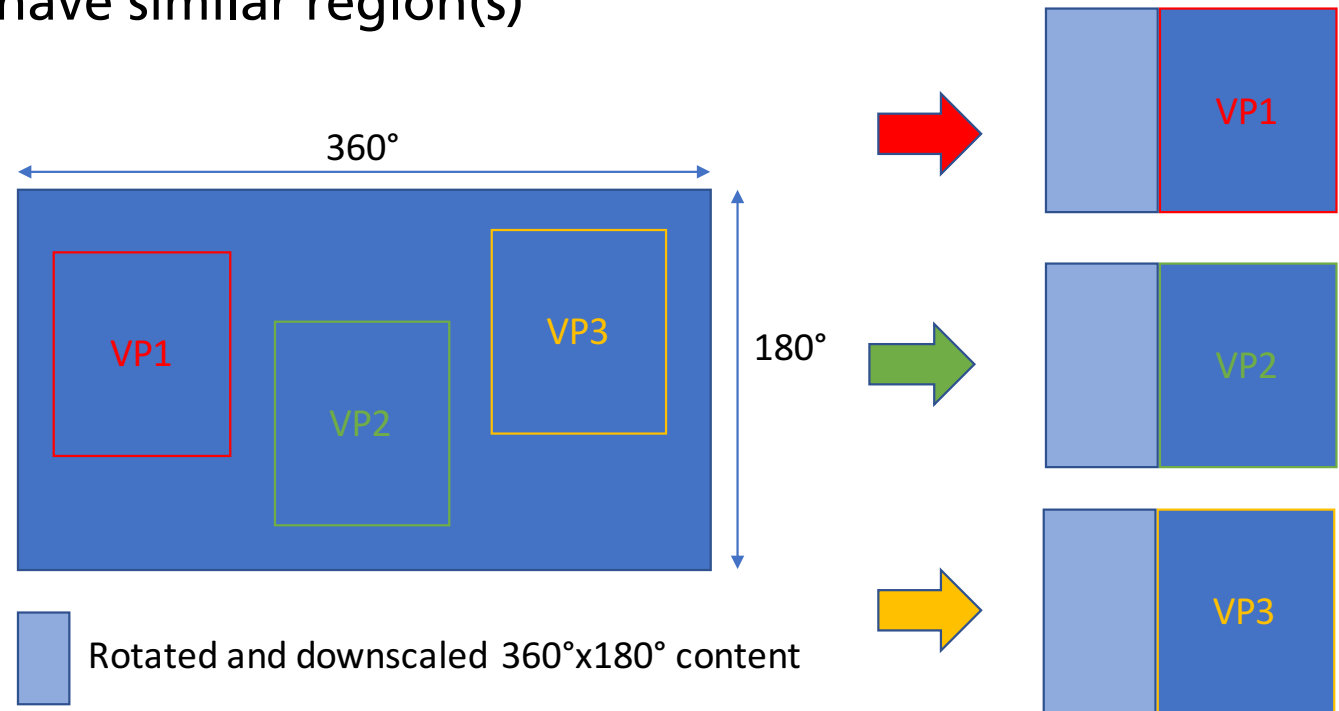
R. Skupin, Y. Sanchez

Fraunhofer HHI



Problem Description: Region-wise Packing (RWP)

- 360° video streaming variant: streams switching between varying preferred viewing directions
- VPx stream consists of high-res viewport and thumbnail overview
- All VPx streams have similar region(s)



Problem Description: Region-wise Packing (RWP)

- Switching between streams requires frequent RAP
- Unnecessary bitrate overhead for common region
- Higher coding efficiency by allowing switching at non-RAP
- RWP SEI message may change at any picture
- Identifying which regions can be assumed static is tedious
- Conformance point definition in OMAF
- Similar proposal is brought to OMAF (m41617)

Proposal: Differentiate static and dynamic regions

Syntax and semantics

regionwise_packing(payloadSize) {	Descriptor
rwp_cancel_flag	u(1)
if(!rwp_cancel_flag) {	
rwp_persistence_flag	u(1)
rwp_regions_type_idc	u(2)
rwp_reserved_zero 64bits	u(64)
if(rwp_regions_type_idc == 0 rwp_regions_type_idc == 2)	
static_num_packed_regions	u(8)
if(rwp_regions_type_idc == 1 rwp_regions_type_idc == 2)	
dynamic_num_packed_regions	u(8)
proj_picture_width	u(16)
proj_picture_height	u(16)
for(i = 0; i < (static_num_packed_regions + dynamic_num_packed_regions); i++) {	
[...]	
}	
}	
}	
}	

Static regions (if any) specified by the region-wise packing SEI message shall be the same for each decoded picture within the CLVS. [...]

rwp_regions_type_idc specifies the type of the regions in the SEI message. **rwp_regions_type_idc** equal to 0 indicates that only static regions are defined for the CLVS. **rwp_regions_type_idc** equal to 1 indicates that only dynamic regions are defined for the CLVS. **rwp_regions_type_idc** equal to 2 indicates that both static regions and dynamic regions are defined for the CLVS.

static_num_packed_regions specifies the number of static packed regions. The value of **static_num_packed_regions** shall be less than 255. If **static_num_packed_regions** is not preset, it is inferred to be equal to 0. ~~The value of static_num_packed_regions shall be greater than 0.~~

Proposal: Differentiate static and dynamic regions

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for(i = 0; i < (static_num_packed_regions + dynamic_num_packed_regions); i++) {	
[...]	
}	
}	
}	

dynamic_num_packed_regions specifies the number of dynamic packed regions. The value of **dynamic_num_packed_regions** shall be less than 255. If **dynamic_num_packed_regions** is not preset, it is inferred to be equal to 0.

The sum of **static_num_packed_regions** and **dynamic_num_packed_regions** shall be greater than 0 and less than 255.

The first **static_num_packed_regions** describe regions for which the value of syntax elements **proj_region_width[i]**, **proj_region_height[i]**, **proj_region_top[i]**, **proj_region_left[i]**, **transform_type[i]**, **packed_region_width[i]**, **packed_region_height[i]**, **packed_region_top[i]**, **packed_region_left[i]** are the same in all region-wise packing SEI messages in the bitstream that apply to the pictures within the current layer of the CLVS.