MediaStream Cropping

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Problem statement

- UI designed for 16:9 video (e.g. fullscreen)
- Some cameras have 16:9 sensors (720p or 360p)
- Some cameras have 4:3 sensors (typically VGA)
- Want to be able to generate 16:9 video regardless
  - For local display as well as encoding
  - Means that constraint-based approach preferred

Solution: crop 4:3 to 16:9

- Discard top/bottom (or left/right if needed)
- Flash's Camera API would do this if you asked for an unsupported resolution; we will make it explicit.
- Always crop; letterboxing/pillarboxing rarely what you want

General Approach

- New mandatory constraint:
  - width.max,min=640
  - height.max,min=360
  - **allowCrop=true**

- If camera supports resolution that falls within mandatory constraints, use that resolution (e.g. 640x360)

- If camera supports resolution that exceeds mandatory constraints, and allowCrop=true, crop to satisfy mandatory constraints

Examples

- 720p sensor, want 4:3
  - width.max,min=960
  - height.max,min=720
  - allowCrop=true
- Want 4:3, from 720p or VGA sensor
  - width.max=1280, width.min=640
  - height.max=720, height.min=360
  - aspectRatio=16/9
  - allowCrop=true
- Want 16:9, from 720p or VGA sensor
  - width.max=1280, width.min=640
  - height.max=720, height.min=360
  - aspectRatio=16/9