

AKAMAI & RESPONSIVE IMAGES

Guy Podjarny (@guypod)
CTO, Web Experience, Akamai

- The first & leading CDN
 - Much more than just a CDN today...
 - Serves 20-30% of Web Traffic
 - Used primarily by big websites
- Core Value Propositions: Acceleration & Offload
 - Common value prop: Driving app/business logic
 - Current Focus: Situational Performance
- Touches Responsive Images in 4 ways
 - Smart Delivery
 - Front-End Optimization
 - Image Converter
 - Adaptive Image Compression

- Detect device capabilities on Edge
 - Custom UA patterns (regex driven)
 - Edge Device Characterization (WURFL-based device fields)
 - Custom detection (e.g. Accept Header negotiation)
- Identify App Logic
 - Cookies
 - Query parameters
- Make delivery decisions
 - Origin, path, downstream cache headers, cache TTL...

WebP Delivery & Akamai

Define paths that may return WebP Images

Accept Header Negotiation
(UA Matching Just as Easy)

(Near) Future: Use Device Characteristic

Device Characteristics

Changes path to /webp/images/...
(also updates cache key)

Mark downstream cache
as private

The screenshot shows the 'WebP Path Modification' configuration window. It includes a title bar with 'WebP Path Modification' and an 'Add Rule...' button. The main content is divided into sections: 'WebP Delivery', 'Criteria', 'Behaviors', and 'Downstream Cacheability'. The 'Criteria' section is highlighted in yellow and contains an 'IF' condition where the 'Path' matches '/images/*' and an 'AND' condition where the 'Request Header' 'Accept' is one of 'image/webp'. The 'Behaviors' section is highlighted in light blue and shows the 'Origin Base Path' with a 'Base Path' of '/webp/'. The 'Downstream Cacheability' section is highlighted in light grey and shows the 'Behavior' set to 'Allow caching', 'Cache Lifetime' as '(Default) Lesser of remaining edge cache lifetime and origin header', 'Send Headers' as 'Send both Cache-Control and Expires', and 'Mark as Private' checked. Blue callout boxes with arrows point from the explanatory text on the left to specific fields in the interface: 'Define paths that may return WebP Images' points to the 'Path' field; 'Accept Header Negotiation (UA Matching Just as Easy)' points to the 'Request Header' and 'Accept' fields; '(Near) Future: Use Device Characteristic' points to the 'Device Characteristics' field; 'Changes path to /webp/images/... (also updates cache key)' points to the 'Base Path' field; and 'Mark downstream cache as private' points to the 'Mark as Private' checkbox.

WebP Path Modification

Add Rule...

WebP Delivery

Criteria

Match All

IF

Path matches one of

/images/*

AND

Request Header Accept is one of image/webp

Add Match

Behaviors

Add Behavior...

Origin Base Path

Base Path /webp/

Downstream Cacheability

Behavior Allow caching

Cache Lifetime (Default) Lesser of remaining edge cache lifetime and origin header

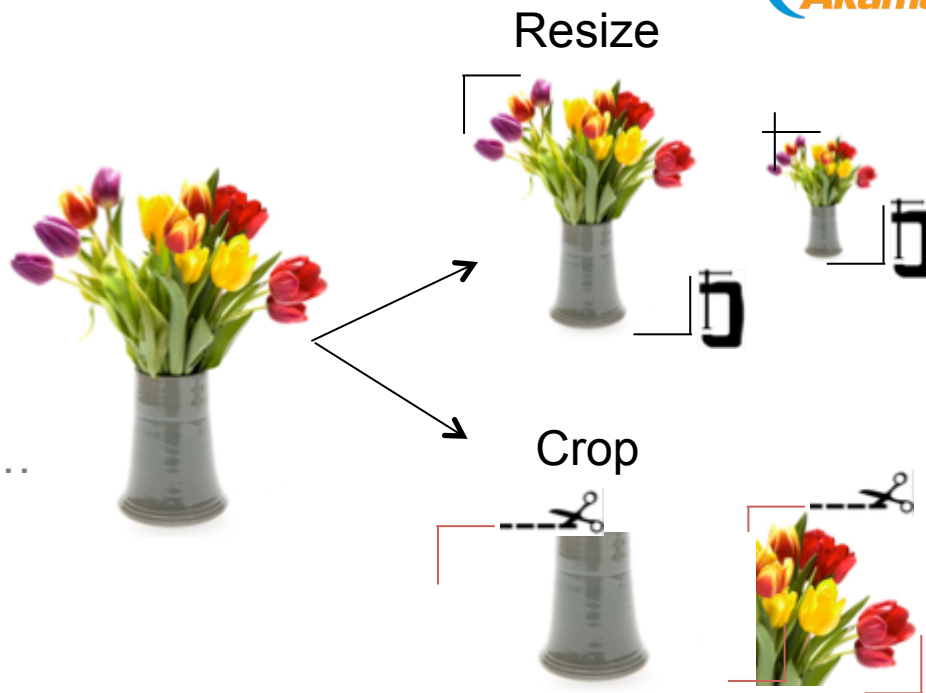
Send Headers Send both Cache-Control and Expires

Mark as Private ☒

Image Converter



- Image Manipulation API
- Akamai's distributed Image Server Farm
- Various Transformations
 - Resize, Crop, Change Quality...
- Currently in Beta
 - To be launched in October
- Supports Art Direction



``

- Accelerate pages through rewriting of HTML & resources
 - Dozens of different optimizations
- Includes Responsive Images optimization
 - Uses origin image as the basis (ideally Retina if available)
 - Creates N versions of each image for increasing resolutions
 - Rounds up current resolution (including DPR) to closest version
- Uses JavaScript to load images
 - Loads images while page is loading
 - Injects DNS prefetch tags to supporting browsers
 - Optionally loads images on-demand (only when visible)
 - Optionally uses a low-quality image placeholder before full image

Adaptive Image Compression (AIC)



Original Image

Network Conditions

Adapted Image



Quality: 100%
Size: 60KB

Excellent

Average

Poor



Throughput: High
Size: 82 KB (Q: 90)



Throughput: Med
Size: 20KB (Q: 40)



Throughput: Low
Size: 13KB (Q: 20)

