

Edge80: A Developer's Overview

Edge80 is a revolutionary new cloud service which provides all the advantages of traditional high-speed CDN storage while adding a new capability: programmability. As a result, Edge80 cannot only offload traffic and accelerate sites, but can also tailor or adapt content to different audiences, different regions, or different devices.

This document provides an overview aimed at informing the developer of how Edge80 works, and what is typically involved in using and deploying websites and services using Edge80.

How Edge80 Works

Rules: Telling Edge80 What to Do

Edge80's cloud servers are driven by a set of rules, each triggered by an incoming request. Rules indicate how the request is processed, and can be quite simple or very complex depending upon the needs of the application. For example, here is a simple Edge80 rule to aggressively cache any item fetched from an origin server:

```
<rule match="*">
  <compose>
    <set-cache aggressive="true"/>
    <fetch type="proxy">
      <set connection-host="origin-server.mydomain.com"/>
    </fetch>
  </compose>
</rule>
```

So, if Edge80 receives a request for:

`http://www.mydomain.com/css/site.css`

it will fetch

`http://origin-server.mydomain.com/css/site.css`

and cache it aggressively.

Edge80's rule language is quite rich, allowing you to start with the simplicity of the above, and begin to completely change, combine, and rearrange content. You can work directly with DOM objects, remove and add content, resize images, and call upon the Edge80's built-in "Rulebook" library framework to perform common tasks easily.

Edge80 even supports a full server-side Javascript implementation, allowing almost limitless control over how content is processed at the edge.

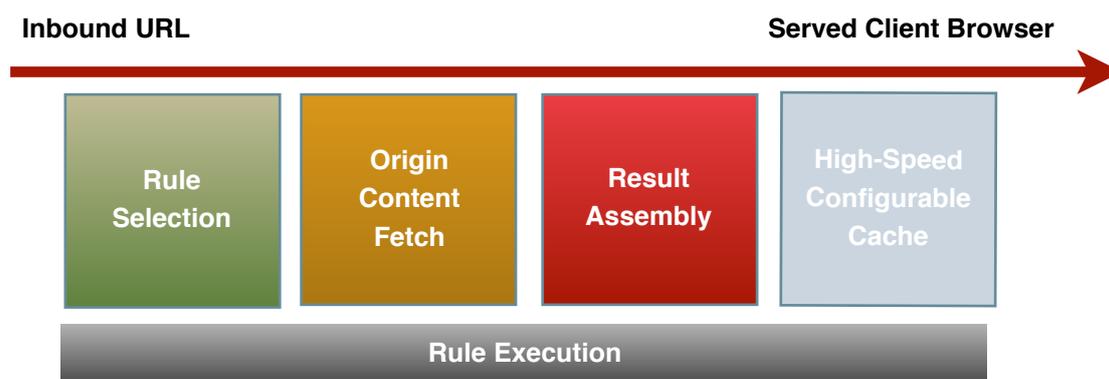
Creating Rules for Your Site

Rules are typically created by one of the Edge80 template wizards inside the Edge80 Management Console (EMC), then tailored using the built-in editor to match the requirements of a site.

Very simple sites that contain no dynamic features may require no customization at all and may benefit immediately from Edge80's scalability and performance. Most sites, however, require some tailoring of rules, especially if dramatic changes are to be made, such as creating a mobile site from a non-mobile backend.

Rules can be used immediately using a sandbox URL. Each account has a sandbox URL assigned, and you can create any number of subdomains to test and develop rules.

When a ruleset is completely tested and ready to deploy, you can associate a domain with the ruleset. Once this is done, traffic for that domain is handled by Edge80, and the rules themselves dictate which content items are retrieved from the origin site when necessary, and how long they are cached by Edge80.



Edge80 Benefits

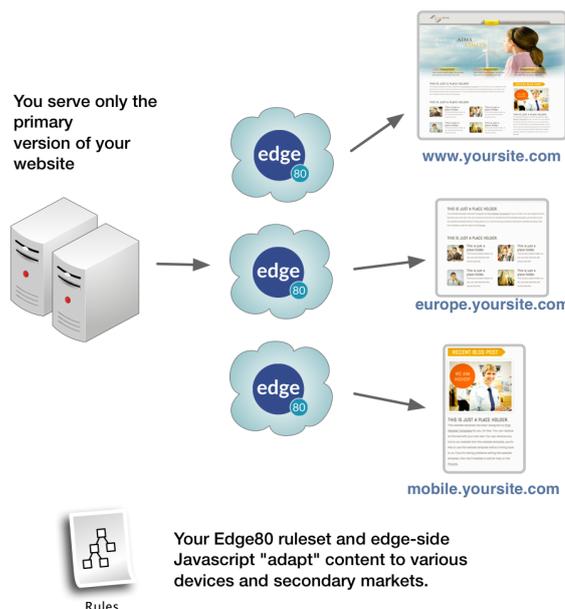
Edge80 provides three primary benefits: content adaptation, reduced backend infrastructure, and performance.

Content Adaptation

The novel advantage Edge80 provides is content adaptation. Unlike a conventional edge-based CDN, Edge80 becomes an active participant in your application, all under your control.

Content can be adapted for a variety of purposes. For example, since Edge80 can automatically sense the device type of the client, images can be resized and cached per-device to offload such work from central servers. But the real effectiveness of Edge80's adaptation features shines when you have websites which need repurposing:

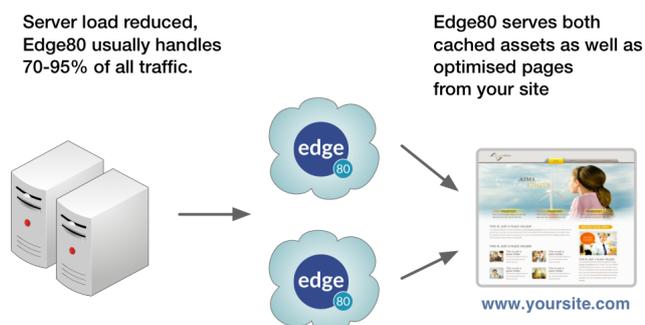
- Mobile sites can be created from backend sites which have no mobile awareness.
- Sites can be "rebranded", white-labelled, or adapted for different countries.
- Internal resources or legacy websites can be modernized and rebranded for the public.
- Responsive sites can be made leaner, more efficient, by removing unused elements at the edge once a mobile device is recognised.



Reduced Backend Infrastructure

Properly designed, an Edge80 ruleset can offload more than 90% of traffic from your backend. Even sites which have shopping carts and user logins can often reach or exceed this number if rules cater to interactive pages.

Edge80 can not only eliminate the need for using a CDN, it can do a lot more. That means you have a single, programmable gateway to your site, geographically close to the client browser. Before your backend even sees a request, it can be rerouted, changed, or modified. You can even host complete sections of your site using Edge80



so that your backend can be relieved of load from high-traffic casual visitors or bots, leaving your servers ready to serve your most important customers.

Plus Edge80's cloud servers are distributed throughout over a dozen separate data centres, each scale up when necessary and can handle far more traffic than any single location.

Performance

Edge80 achieves it's impressive performance because of the following characteristics:

- Edge80's server technology is written from the ground-up and designed for speed and reliability. Cached objects are generally served in less than 5ms.
- Edge80 rules consolidate all traffic to the client so it is distributed from a single IP address, then uses browser pipelining to stream content as fast as possible to the browser. This results in fewer connections, fewer DNS lookups, and less load on the browser. This is especially noticeable in mobile clients.
- The Edge80 rule language contains features specifically designed to limit cookies, one of the worst performance offenders on the Internet. While cookies are often required for tracking user sessions and metrics, most CMS software indiscriminately sends cookies to browsers even when they are not necessary.
- Well-written custom rules can resize images and eliminate entire content sections which are unneeded (such as hidden areas of responsive sites).

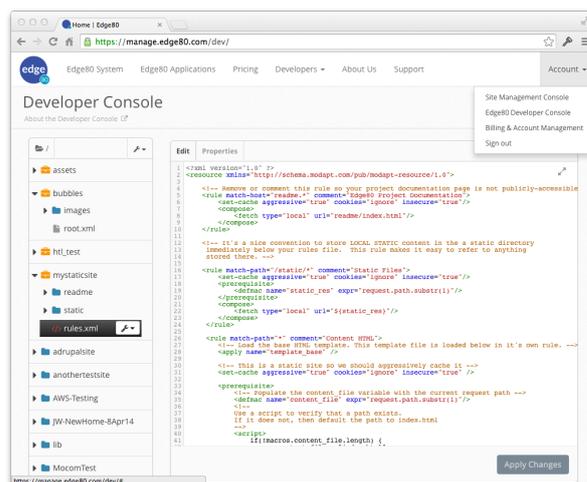
Tailoring Edge80's rules to meet your infrastructure and needs is usually straightforward, and Edge80's framework libraries already have templates to do the most common tasks such as ensuring that cookies are sent to clients only when necessary, and increasing cachability of many pages. Edge80 has extensive documentation and wizards, along with world-class customer support to help you get superior performance.

Developing With Edge80

All features of Edge80 are accessed and managed using the Edge80 Management Console, or EMC. The EMC provides the ability to create, edit and debug rules, as well as features to associate domains with accounts and manage billing and statistics.

The amount of time it may take to develop rules varies. Simple static sites can be ready within a day. On the other hand, complex adaptations of strategic websites may take weeks. There is no simple guideline since all sites are different. But, it's important to note that Edge80's rule language is designed to make adapting and modifying site content easier than any other available technology.

Creating Edge80 applications almost always saves significant time compared to modification of the base site.



Deploying Edge80 Sites

Sandbox Sites

When developing, Edge80 provides a “sandbox URL” such as <http://youraccount.runs80.com>. These sandbox sites aren’t really special in any way. Some clients even use them for production work, or give them to prospective viewers in order to test ideas. They are perfectly legitimate Edge80 sites which will perform just like any other.

However, most production sites will end up using a custom domain owned by the Edge80 user and retain the sandbox URL’s for testing and previewing only.

Custom Domains

Using the Edge80 Management Console, any user may assign their domains to specific Edge80 rulesets.

Once this is completed, we recommend that clients test their sites using local “hosts table” entries to be sure that their site works properly using the custom domain. Testing in this way is an essential step before putting a site live by changing DNS entries.

When testing is complete, Edge80 documentation contains complete DNS management instructions for you or your system administrator. We generally recommend that the origin site (the backend) have a separate, non-public URL so that access to CMS administration and other internal areas can bypass Edge80 if desired, or if administrative areas are intentionally hidden from the public by custom Edge80 rules.

Note that Edge80 does not currently support custom SSL domains. Instead, Edge80 provides a each client with an SSL domain which has the format <https://accountname.authssl.net>. These SSL pages can be processed by Edge80 rules in the same way as any other request.

Testing Sites

Good testing by the Edge80 user is essential. Because Edge80 rules allow you to make any conceivable change to a site, the newly deployed site is really equivalent to a new, untested site.

The extent to which you need to test your Edge80 site depends entirely on how complex the rules are. If you have a simple site, and are simply using Edge80 to scale and accelerate it, it is likely that such simple rules require minimal testing. But, if your site includes significant adaptation, special handling for dynamic sites or eCommerce, then extensive testing is essential.

How to Get Started

Here are some tips about how you can get started using Edge80, with some links to important reference material.

The best starting point for a new project is to first setup a simple reverse proxy for it.

See: [Edge80 Consoles](#) and [Simple Reverse Proxy](#)

For an overview of all Edge80 documentation, see the [User Guide](#)

When ready, you can serve your Edge80 site from your own custom domain.

See: [DNS Setup Information](#)