ARC Light Computed Edge Policy

The Limelight Content Delivery Network (CDN) provides important services for delivery of websites, files, games, images, and other types of content. A large number of standard configurations allow tailoring the delivery of content to specific requirements of websites. Complex logic is sometimes needed to meet the goals of the customer. This is accomplished through ARC Light, which allows the CDN to use data in user requests and/or origin responses to make decisions by using computed edge policies to facilitate real-time modifications of user requests and/or origin responses.

Challenges Delivering Web Content
Servicing users often requires websites to examine data within the requests to make decisions and modifications in order to properly respond. Some of the data that can be used to do this include geo lookups, cookies, queryterms, and IP addresses. In addition, robust content security measures must often be implemented to protect unauthorized users from gaining access. Performing these tasks in webservers requires an organization’s internal resources to develop the code, test, and deploy it. Some of the data manipulations can be complex, and can slow down webserver responses, resulting in increased site abandonment and damage to brand reputation.

How Computed Edge Policy Solve the Challenges
ARC Light solves these challenges by using compute edge policy to manipulate information in user requests so the CDN can streamline the process of responding to users. Example use cases follow below that demonstrate the broad range of capabilities ARC Light provides. By offloading the creation of policies to the Limelight Advanced Services team, development, testing, and implementation of custom edge policies will happen fast, delivering powerful business benefits.

Use Cases
ARC Light can be used to enhance:  
- MediaVault  
- Access Control  
- Redirection
- Origin Selection  
- Cache Control

Use Case Examples

Media Vault: Header Tokens
Enhancements can be made to MediaVault to make access challenges more robust, by creating custom tokens that must be included when a user requests content. For example, a media company with an extensive library of video assets has a premium subscription service. To ensure only premium subscribers gain access to the content, their requests must contain two tokens. When these subscribers access the website, the appropriate tokens are generated, and included in requests for content. ARC Light evaluates if the requests include the tokens, and that the tokens are valid, before granting access. If the tokens are not valid, the requests are redirected to alternate content.

Access Control: By IP Address + Header
ARC Light can easily provide functionality for organizations that want to offer multiple service levels for member paid subscribers vs. member non-paid, and non-members. In this example a media company has paid subscriptions for content access with no advertising and free membership with access to content with advertising. Cookies are used to tag paying vs. non-paying members. When a user to the site requests content, ARC Light checks the cookie for authenticated members. Users that have not logged in are redirected to the login screen. Once logged in, users are checked for paid membership. Those with valid paid membership are directed to content free of advertising, those non-paying members are directed to content with advertising. Users who are not members are not granted access to content.

Redirection: Content By Geography
A publishing company has content with licensing restrictions based on location of users. They have content that can only be accessed by users from the US or Australia. When users request content, ARC Light uses Geo lookup data to verify location of the user. Confirmed US-based users are granted access to US content, a user from Australia would be redirected to the library of content available to Australians. Visitors outside the US and Australia are blocked from access.

Request Modification: Language By Geography
An eCommerce company publishes its website in multiple languages. When a visitor from China navigates to the eCommerce site, the geo location of the visitor is detected, and ARC Light executes a policy to add a query string to indicate the Chinese language version of the site should be utilized.
**Redirection: Content By Cookie**
A visitor to an online shopping site adds items to their shopping cart, but has not logged in yet. The site writes a cookie indicating the visitor added items to a shopping cart. The visitor navigates away from the site prior to checking out. If they return to the site, ARC Light detects the shopping cart cookie and executes a policy that adds query string information to the site request URL. The visitor’s shopping cart will then be recalled and available to add additional items to it, or for checking out.

**Redirection: Response Codes by Query String**
A visitor requests a URL that includes a set of query strings. ARC Light detects the query string and executes a predefined policy for returning a redirect response code when the query string is present. The user request is redirected to the appropriate URL based on the query string.

**Origin Selection: By Geographical Location**
A mobile device manufacturer has a software update to push to all devices via a CDN. To deliver the update, the CDN will capture the Geo information and pass it the ARC Light, which will send devices located in China to Chinese origins, devices located in North America to North American origins, etc.

**Cache Control: By Header Information**
To deliver a fast loading webpage to users, a site would like to serve content from CDN cache if a user request contains a query string. ARC Light evaluates every user request to determine if the query string exists, and if the query string is present, content is served from CDN cache. For requests without the query string, ARC Light sends them to origin.

**Business Benefits**
Limelight customers can benefit from the customized power of Computed Edge Policy to accomplish specialized tasks at the network edge:

- **Improved User Experience**—Enhance brand reputation with rapid responses to user queries.
- **Rapid Time to Transaction**—Speed user connection to correct website and content, lower site or shopping cart abandonment, increase return site visits and revenue.
- **Enhance Content Access Security**—Custom tokenization generation.
- **Avoid Rules Development and Complex Data Manipulation by Websites**—Offload development and compute tasks to Limelight experts and edge policy.

**Actionable Data**

<table>
<thead>
<tr>
<th>URL</th>
<th>Cookies</th>
<th>Queryterms</th>
<th>Hostname</th>
</tr>
</thead>
<tbody>
<tr>
<td>Header</td>
<td>Response status code</td>
<td>Requesting IP address</td>
<td>Geo lookups</td>
</tr>
</tbody>
</table>

**Edge Policy Actions**

- **Traffic Flow Modification**—End user requests contain actionable data which is used to calculate the desired origin, and route the request to the calculated origin. This action is transparent to the user.
- **Request Modification**—Computed Edge Policy modifies a request by changing URL, query strings, headers, and/or a cookie. The request is processed and a response is served, or sent to the origin.
- **Response Modification**—Computed Edge Policy modifies a response by changing URL, query strings, headers, and/or a cookie. The modified origin response is sent to the end user.

**About the Orchestrate Platform**
Limelight Orchestrate is a cloud-based suite of software built on top of a world-class Content Delivery Network (CDN) that enables you to deliver any kind of digital content—websites, video, file downloads, games—to anywhere, on any supported device. For more information about Orchestrate visit [http://www.limelight.com](http://www.limelight.com).

**About Limelight Networks**
Limelight Networks (NASDAQ: LLNW), a global leader in digital content delivery, empowers customers to better engage online audiences by enabling them to securely manage and globally deliver digital content, on any device. For more information visit our website.