



EdgeScapeSM
Service Description
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Table of Contents

1	INTRODUCTION	2
2	HOW EDGESCAPE WORKS.....	2
3	EDGESCAPE DATA-GATHERING TECHNIQUES.....	3
4	EDGESCAPE DATA ELEMENTS	5

1 Introduction

Akamai's EdgeScape is an IP intelligence service enabling e-businesses to drive targeted business strategies online. EdgeScape leverages Akamai's massive server deployment and relationships with networks throughout the world to enable optimal collection of geography and bandwidth-sensing information. As a result of these unparalleled data-gathering techniques, Akamai provides companies with a highly accurate knowledge base of where and how users access the Internet. This information enables e-businesses to leverage geography-based business strategies, customize content to provide more relevant information, and protect their goods and information.

This document provides an overview of the Akamai EdgeScape service. For complete instructions on installing the service and integrating with your applications, please see the *EdgeScape User Guide*.

The possible applications of Akamai EdgeScape are limited only by imagination. Please see the *Applications for Akamai EdgeScape* white paper for an overview of just some of the applications that can have a big impact on an enterprise's e-business.

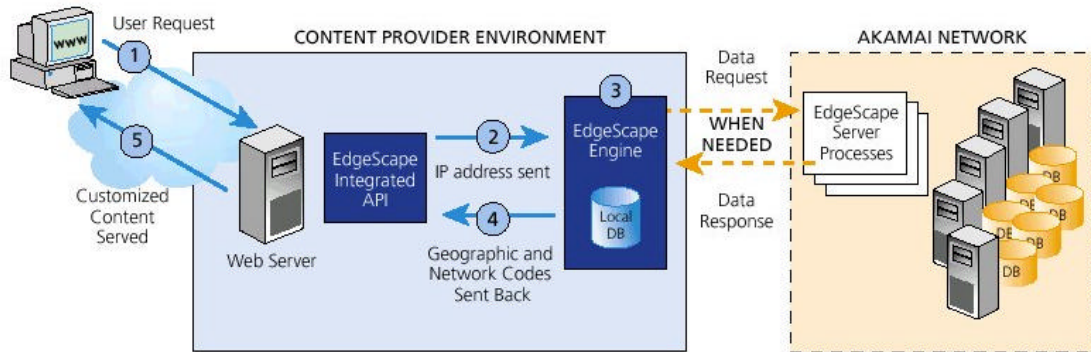
Akamai EdgeScape consists of both the EdgeScape and EdgeScape Pro services. Unless otherwise denoted in this document, the term EdgeScape refers to both services.

2 How EdgeScape works

EdgeScape is an outsourced service that combines a software client with connectivity to the Akamai network for complete service setup and delivery. Customers implement the EdgeScape service by installing the API and EdgeScape Engine directly onto their Web or application servers. When a user visits the customer's Web site, a query is made through the API to the EdgeScape Engine. The query triggers a lookup in the database to resolve the user's IP address to the appropriate country code (and additional attributes if available). These attributes can then be utilized for custom content functionality based on what applications the provider has developed. EdgeScape's API can be integrated into many commercial provider unique Web application packages to enable a variety of personalization functionality.

The EdgeScape software has the ability to communicate to servers on the Akamai network that contain constantly updated mapping information. On a regular basis, the EdgeScape software will download the latest mapping database from the Akamai network to ensure that the data for the EdgeScape service is as up-to-date as possible.

EdgeScape's installation and integration was designed with rapid deployment and flexibility in mind.



1. User request for Web site reaches Web server.
2. Web server uses EdgeScape integrated API to send user's IP address to the EdgeScape Engine.
3. If the Engine does not have the user's geographic and network data stored locally, it retrieves it from the knowledge base stored on the Akamai network.
4. The EdgeScape Engine sends user data back to the integrated API.
5. Web server selects customized content for delivery to the user.

A customer integrates the EdgeScape API into their Web server or application server. This API communicates with the knowledge base via software to retrieve the very latest information.

The API is based on open standards that can be implemented in any of today's popular development languages including C, Perl, and Java. The API is integrated into the provider's Web application to field user requests to the Web site and submit a query to the EdgeScape Engine for the IP address resolution. Upon receiving the output from the EdgeScape Engine, the API can parse the response to give the provider access to any or all of the metrics returned from the query.

EdgeScape's engine is available on today's most popular operating systems for installation either on the same server as the Web application or a dedicated server. The engine functions to retrieve the queries from Web applications enhanced with the EdgeScape API to conduct the IP address lookup and subsequent return of user access information. Furthermore, the engine maintains the integrity of the database and facilitates the connectivity to the Akamai network for retrieving the most up-to-date database. It also controls the backup functionality of direct connectivity to the Akamai EdgeScape servers in the event the local database becomes unavailable.

3 EdgeScape Data-Gathering Techniques

Current data gathering techniques on the Internet include everything from standard network diagnostic activities such as reverse DNS lookup to data collection methods such as user clickstream monitoring and analysis. Each method offers its own degree of comprehensiveness and accuracy, making any packaging of the output as effective as the sum of its parts and the diligence of its provider.

Akamai's network, the largest content delivery network on the Web, has the singular distinction of having the most servers available to employ network-mapping activities for the development of a comprehensive IP address database. Akamai's massive

server deployment and relationships with networks throughout the world enable the optimal collection of geographical and bandwidth-sensing information.

As a result of these unique data-gathering techniques, Akamai provides a highly accurate knowledge base with worldwide coverage. Akamai's services, which rely on the optimal mapping of the Internet between end users and nodes on Akamai's network, have employed these patented mechanisms since 1998. Having proven itself the industry leader in high-performance mapping and analysis of the Internet, Akamai now offers this knowledgebase to customers for use in applications.

Akamai's data collection methodology employs a diversity of sources and combines them using sophisticated algorithms and intelligent heuristics. The following are three sources of data unique to Akamai:

- Unaggregated BGP feeds with community strings – Akamai has partnerships with more than 1,000 networks and service providers. These partners provide Akamai with unaggregated BGP feeds that include special geographic information embedded in community strings regarding blocks of IP addresses. These partnerships also enable Akamai to obtain detailed information regarding network layout and DNS nomenclature schemes of these networks.
- Triangulation – Akamai's vast footprint of more than 13,000 servers enables Akamai to fix the location of IP addresses using heuristics based on estimates of transmission and queuing delays. Roundtrip time estimates from a variety of locations are employed in a sophisticated error-correction algorithm that essentially triangulates the location of IP addresses using the known locations of other baseline IP addresses.
- Throughput – Akamai is unique in that nearly anybody who has been on the Internet is virtually guaranteed to have been served by an Akamai node. This is because Akamai carries the world's most popular content. On any given day, more than 50 million unique IP addresses make over two billion hits on Akamai servers around the world. Akamai has specially instrumented its servers so that whenever Akamai services an end-user's requests, it records statistics on the TCP characteristics of the session. These TCP statistics are then processed using complex "window-based" statistical algorithms that infer the effective throughput of the end user.

4 EdgeScape data elements

Akamai's EdgeScape service provides a comprehensive set of data for geographic location, network, and corporate identity. For each user visiting a content provider's Web site, EdgeScape will deliver the ISO standard two-letter country code of the request origin. In conjunction with the country codes, the service may also deliver additional attributes. Below is the list of attributes that may be stored in the EdgeScape database:

- Country
- Region (State or Province)
- *City
- *Market Area
- *MSA/*PMSA
- *Time Zone
- *County
- *Area Code
- *Latitude/*Longitude
- *Zip Code
- Network (e.g. AOL, ATT)
- Connection Type (e.g., dial-up, cable modem, DSL, ISDN)
- *Actual Connection Speed
- *Company
- *Domain Name

Denotes attributes only available with the EdgeScape Pro service.

About Akamai

Akamai is a leading provider of secure, outsourced e-business infrastructure services and software. These services and software enable companies to reduce the complexity and cost of deploying and operating a uniform Web infrastructure while ensuring unmatched performance, reliability, scalability, and manageability. Akamai's services and world-class customer care give businesses a distinct competitive advantage and provide an unparalleled Internet experience for their customers. Akamai's intelligent edge platform for content, streaming media, and application delivery comprises more than 13,500 servers in more than 1,000 networks in 66 countries. With headquarters in Cambridge, Massachusetts, Akamai provides services to companies worldwide. For information on Delivering a Better Internet SM, visit www.akamai.com.

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