

Keynote[®] Service Level Rankings™



Keynote Service Level Rankings for Credit Card Customers

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Overview

Keynote believes that competitive research is the key to building a website that excels in performance and helps a company meet its business goals. To succeed, companies must understand not only how consumers perceive their site, but also how their site performs compared to the competition.

To help companies understand how they stack up against key competitors, *Keynote Service Level (SL) Rankings for Credit Card Customers* provides a customer's perspective on the performance of the top online credit card web sites.

The study specifically focuses on the secure portion of the credit card site that customers use to access their statement, pay their bill and display their recent charges. The study ranks the sites on various components of site performance, such as transaction responsiveness, consistency, geographic uniformity, reliability, scalability, page design, and Internet connectivity, and provides companies with actionable insights into how to improve in these areas.

Because the rankings are based on quantifiable metrics, site owners can use Keynote's findings to improve their overall site experience. Keynote's Service Level Rankings also provide valuable industry-wide insights. They identify the best sites and highlight areas for improvement, as well as help industry analysts keep abreast of the best application of evolving Web technologies, and help site owners to set service level goals that are appropriate for their own industry.

Armed with this intelligence, e-business and Operations Managers can make informed decisions that improve site performance relative to competitors, maximize returns on site content and design investments, and ultimately build stronger relationships with existing and new customers.

Sites Evaluated

The following sites were evaluated as part of this competitive benchmarking study:

- American Express
- Bank of America
- Capital One
- Chase
- Citi
- Discover
- HSBC
- MBNA
- Providian
- U.S. Bank
- Wachovia
- Wells Fargo

Overall Service Level Ranking

Using a month's worth of measurement data and extensive analysis, Keynote ranks the sites in two major categories, Reliability and Responsiveness. A site's ability to service its customers without errors or outages is reflected in the Reliability ranking. Its ability to provide highly responsive and consistent page downloads is reflected in the Responsiveness ranking.

Keynote Service Level Rankings for Reliability
(Indicator of Being Highly Available, Low Downtime)

Rank	Credit Card Websites
1	American Express
2	HSBC
3	Wachovia

Keynote Service Level Rankings for Responsiveness
(Indicator of How Quickly Pages Loaded, Transactions Completed)

Rank	Credit Card Websites
1	US Bank
2	Bank of America
3	HSBC

Key Performance Factors

To obtain the overall Reliability and Responsiveness Service Level Rankings, Keynote first evaluates and compares the sites using up to 40 detailed service level metrics. Key Performance Factors are then derived by ranking the sites based on related sets of these underlying metrics. The Key Performance Factors are:

- High Speed Response
- Dial-up Response
- Response Time Consistency
- Geographic Uniformity
- Load Handling
- Availability
- Outages

Each Key Performance Factor represents a distinct aspect of site performance; as is illustrated by the selection of results presented below. It is rare for a single site to excel in all aspects. Keynote's Service Level Ranking Report presents detailed analysis and results for each aspect separately.

The full report provides detailed answers to questions like:

- Which sites are the most stable, offering consistent levels of service?
- Which sites offer web pages that are technically well-designed?
- Which sites provide the best service for dial-up or broadband users?
- Which sites are the most reliable; which have the fewest outages?

The following sections summarize the findings for two performance factors: Average High-Speed Response and Availability.

High Speed Response

The Average High Speed Response factor represents a customer's experience of site responsiveness when using a high speed Internet connection. This factor is derived from measures of site responsiveness, recorded when each site is measured over a high speed connection, including:

- Average Page Download Time
- Home Page Download Time
- Account Summary Page Download Time
- Recent Charges Page Download Time
- Pay Bill Process
- Average Page Bill Page Download Time

High Speed Response

Rank	Credit Card Websites
1	Chase
2	Bank of America
3	US Bank

Of the sites in the study, Chase was the most responsive over a high speed Internet connection, followed by Bank of America and US Bank. High speed (broadband) performance was excellent, with average page downloads of 2.2 for the industry seconds and several sites reporting average page download times of less than 1.5 seconds.

Availability

The Availability factor represents the customer's experience of overall site errors and successes. This factor is derived from the following measures of site availability:

- Overall Availability (Peak)
- Overall Availability (24X7)
- Home Page Availability (Peak)
- Account Summary Availability (Peak)
- Recent Charges Availability (Peak)
- Pay Bill Process Availability (Peak)

Availability

Rank	Credit Card Websites
1	American Express
2	HSBC
3	Providian

According to the study, American Express, HSBC and Providian were the credit card industry's most available Web sites, indicating those sites were highly available on the average. Overall, the industry recorded just average reliability, with just 97.9% reliability during peak periods.

American Express reported excellent reliability at 99.7% during peak periods. Several of the poorer performing sites recorded up to 40 hours of outage during the 500 peak hours studied, resulting in a poorer average reliability for those sites of just 94%. This mark is well below the threshold of 99% availability that Keynote recommends in order to remain competitive and provide quality service in the financial services industries.

Full Study Results

Customers purchasing the full study results for the Service Level Rankings will receive:

- An executive presentation, which highlights general industry trends and ranks each company in the study on each of ten performance factors. The insight gained helps executives identify general areas of site improvement that have the maximum impact on the customer's online experience.
- An in-depth presentation that analyzes each of the diagnostic metrics that constitute the Key Performance factors. The presentation also contains detailed information on best practices in site design, as implemented by leaders in the study. Armed with this intelligence, IT Managers can tune specific site elements to improve the performance delivered to customers relative to what key competitors offer.

- A detailed investigation of their own site prepared by a Keynote Service Level Consultant. Based on the data collected during the Service Level Ranking study, a Keynote consultant will make tactical and strategic recommendations about how to improve the site's service levels and offer customers the best possible experience online.

Study Methodology

To measure the sites in the study, Keynote uses its Transaction Perspective agents—the industry's most accurate web application monitoring technology based on the IE 6.0 browser. For this study, we placed Transaction Perspective agents in 10 major US cities. These agents performed multi-page transactions against 10 leading credit card provider Web sites, collecting over 6,500 detailed measurements of the responsiveness and reliability of each site. The data was collected during February and March of 2006.

Measurement Frequency

Transactions were run against each site every 1 hour s from each of Keynote's US10 agents and data was collected over a four week period

Peak and Off-Peak Periods

When computing many of the metrics evaluated, Keynote confined its analysis to a peak period, defined as Monday through Sunday, from 8:00 AM-Midnight Limiting the analysis to a peak period is especially important when calculating reliability, since many sites schedule routine maintenance at night when customer traffic is usually very light. Including outage data collected during off-peak periods could make the rankings unrepresentative of a typical customer's experience.

Transaction Perspective Agent

The Service Level Rankings study is based on Keynote's highly accurate and realistic Transaction Perspective® measurement service. This service uses measurement computers ("agents") that mimic a series of actions by a consumer interacting with a Web site using the Internet Explorer browser, taking detailed measurements of the entire process.

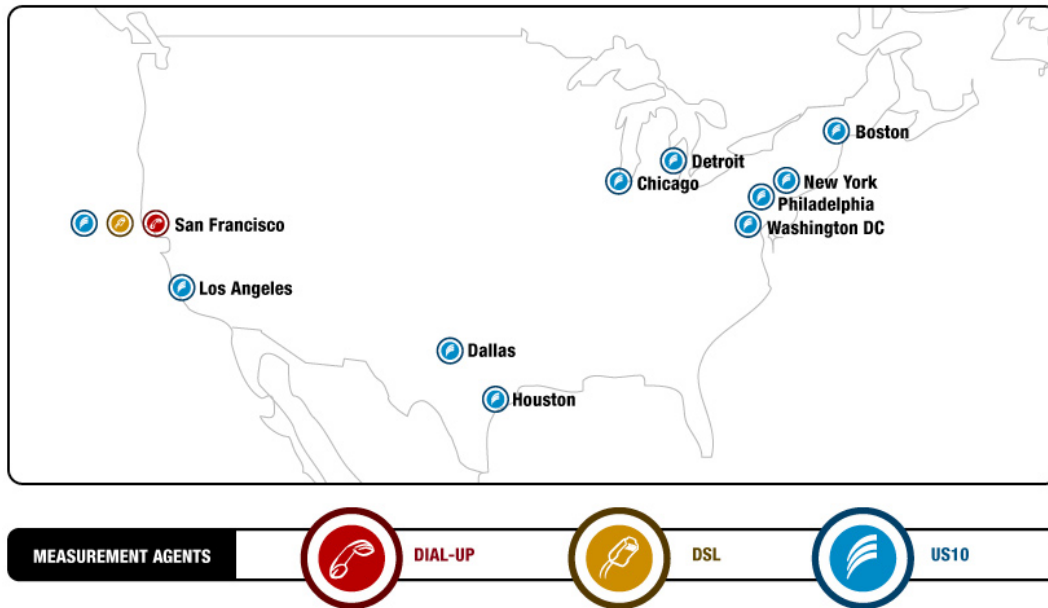
Keynote's Transaction Perspective measurement computer ("agent") is the most accurate and high fidelity measurement technology available. The Agent uses the IE 6.0 browser to ensure measurement accuracy. Just like a user, the agent uses two concurrent threads to fetch page components and allows the use of persistent connections. This browser also handles SSL, JavaScript, Flash, ActiveX, and other interactive languages that can have a significant impact on both performance and availability.

Measurement data includes rendering time of all components to ensure that the data gathered represents the complete customer experience.

Agent Locations

To represent the experience of real customers, Keynote's agents are located on major Internet backbones and in principal population centers throughout the U.S.

Agent Locations



Ranking Methodology

The overall scoring and ranking process is performed in three stages. Keynote first evaluates a large collection of metrics that describe various aspects of site performance. Next, each site's scores for these underlying metrics are combined into an overall score for each of seven key performance factors. Finally these performance factor scores are combined to create separate scores and rankings for Responsiveness and Availability.

Each underlying metric score is based on statistics calculated from the large sample of measurements collected during the study. For example, for the underlying metric Overall Transaction Response Time, the statistic used for each site is the geometric mean of the site's total transaction response time; this is a good measure of the typical response time a majority of users would experience when using that site. Normalized metric scores are assigned to each site based upon the observed distribution of values of this statistic for all the sites in the study.

Overall scores for all key factors are then calculated for each site, by averaging the scores for each factor's underlying metrics. For example, the score for the factor High Speed Response is the average of nine underlying metrics, each of which reflects the response times of different pages or components of the transaction of interest.

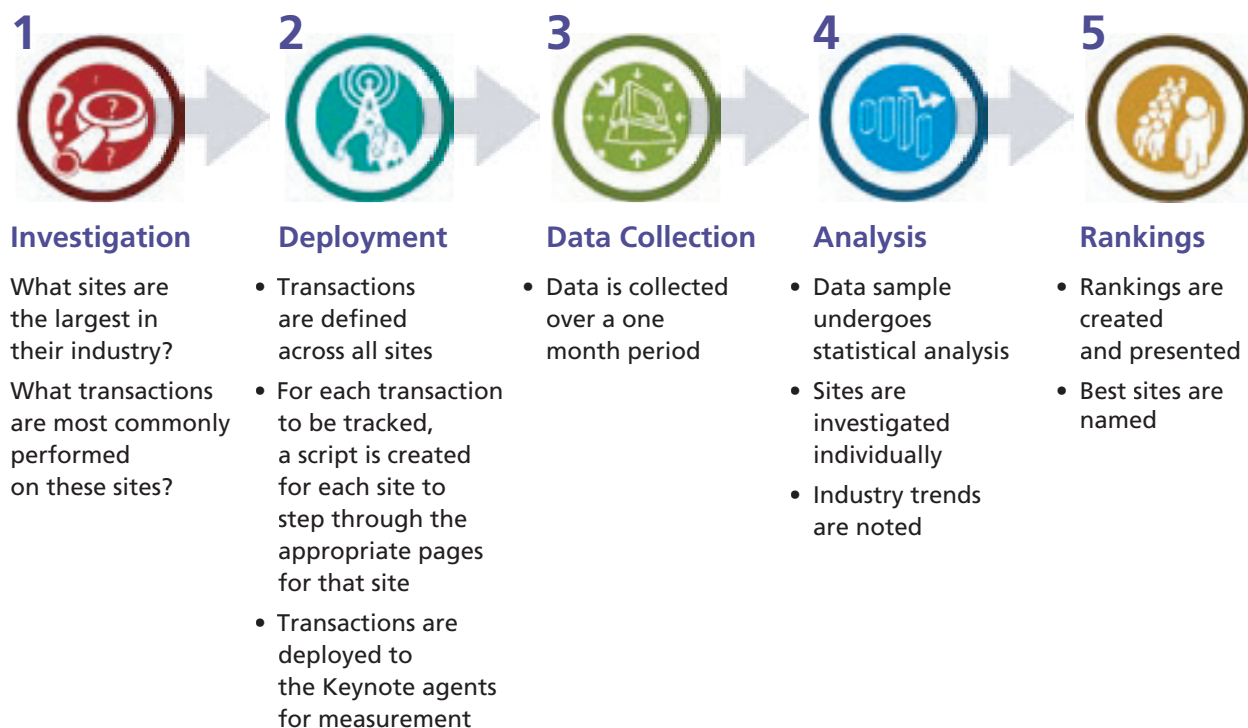
The overall scores and rankings for Responsiveness and Reliability are a weighted average of key performance factors. The Responsiveness ranking is based on five factors: High Speed Response, Dial-up Response, Response Time Consistency, Geographic Uniformity and Load Handling. The Reliability ranking is based on Availability and Outages. For readability, the final scores are transformed to a 1000-point scale.

Longitudinal Comparisons

Keynote Rankings provide a solid base for longitudinal comparisons and benchmarking. Studies are repeated at least annually. Each iteration of a study uses a similar study design, and the analysis is based upon standard Keynote metrics, resulting in data that can be easily benchmarked and compared over time.

Keynote plans to release the third wave of Service Level Rankings for Credit Card Customers in February 2007.

Overall Methodology



Keynote Systems

Keynote Systems, The Internet Performance Authority®, is the worldwide leader in e-business performance management services. Over 2,300 corporate IT departments and 13,000 individual subscribers rely on Keynote's growing range of measurement and monitoring, service level and customer experience management services to improve e-business performance by reducing costs, improving customer satisfaction and increasing profitability.

For More Information

If you have a specific question about the information contained in this Keynote Rankings Study, please contact us at 650-403-2400 or online at www.keynote.com.