

Introduction to New Relic Insights

by Jeff Reifman

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Introduction to New Relic Insights

by Jeff Reifman

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What Is New Relic Insights?

New Relic Insights combines business metrics, performance data, and customer behaviors in one giant database. And if you're already using New Relic to monitor your application performance, your data is already in the Insights warehouse.

Insights builds on the core New Relic data collection engine, APM (Application Performance Management), and extends it to include user behavior, business transactions and more.

Insights starts with a core set of attributes taken from two initial sources:

1. Transaction events from the New Relic APM agent ([APM events](#))
2. Page view events from the page load timing process in New Relic Browser ([Browser events](#))

Even more powerfully, though, you can add custom attributes and events and quickly see what's happening with your website features in real time.

If you read [Using New Relic to Monitor WordPress Performance \(Tuts+\)](#), you might already have an active New Relic APM account collecting data about your website. For more information on Browser, check out [Front-End Monitoring with New Relic Browser \(Tuts+\)](#).

Four Main Components

Insights contains four main components:

1. A high-powered, index-free events database that stores your data in the cloud.
2. An SQL-flavored query language (NRQL) to read and organize data from the events database.
3. A simple HTTP request API to add custom attributes and events to the events database and to get data back out again for local applications. New Relic offers support for the API in [several different languages](#) (such as Ruby, Java, .NET, PHP, and Python) to make integration simple.
4. A dashboard management interface with a collection of widgets to help you represent data quickly and clearly. Using the Insights interface, you can quickly and easily build dashboards to identify problems with your servers and applications in real time or to track ongoing data trends and share them with your team.

For example, you can ask questions of the Insights data warehouse using NRQL:

The screenshot displays the New Relic Insights interface. At the top left is a circular profile picture of a woman. To its right is a text input field containing the question: "How many customers do we have in China?". To the right of the input field is a teal button labeled "Show Me More". Below the input field is a black bar containing the NRQL query: `NRQL> SELECT uniqueCount(customerID) FROM PageView WHERE countryCode = 'CN'`. Below the query bar, there are two main data visualization components. On the left is a "Customers" widget, which shows "809 ACTIVE ACCOUNTS" and "Since 2 minutes ago". On the right is a "Leads Per Week" widget, which shows a bar chart with a light blue background and white bars representing weekly data points.

The NRQL autofill makes learning to build queries simple and intuitive:

Welcome to your data, let's get querying

```
NRQL> SELECT uniqueCount(
```

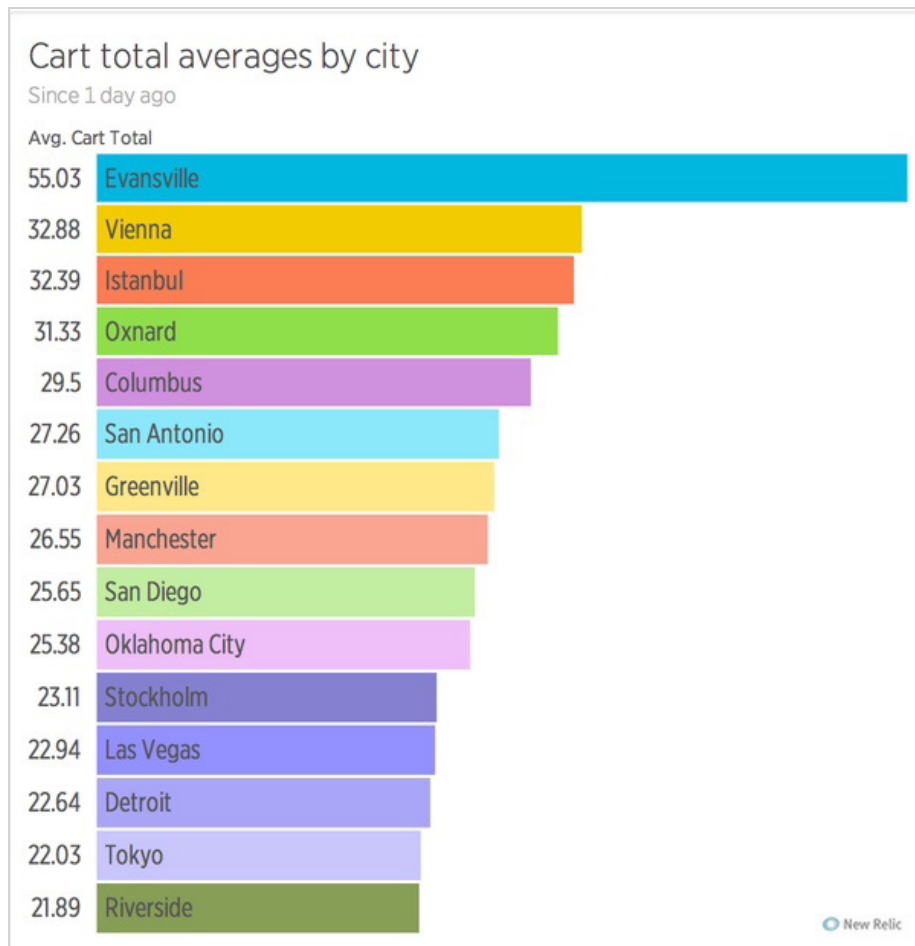
pageUrl	attribute
appId	attribute
city	attribute
countryCode	attribute
name	attribute
appName	attribute
regionCode	attribute
session	attribute
userAgentName	attribute
userAgentOS	attribute
userAgentVersion	attribute

History 1 Favorites 0

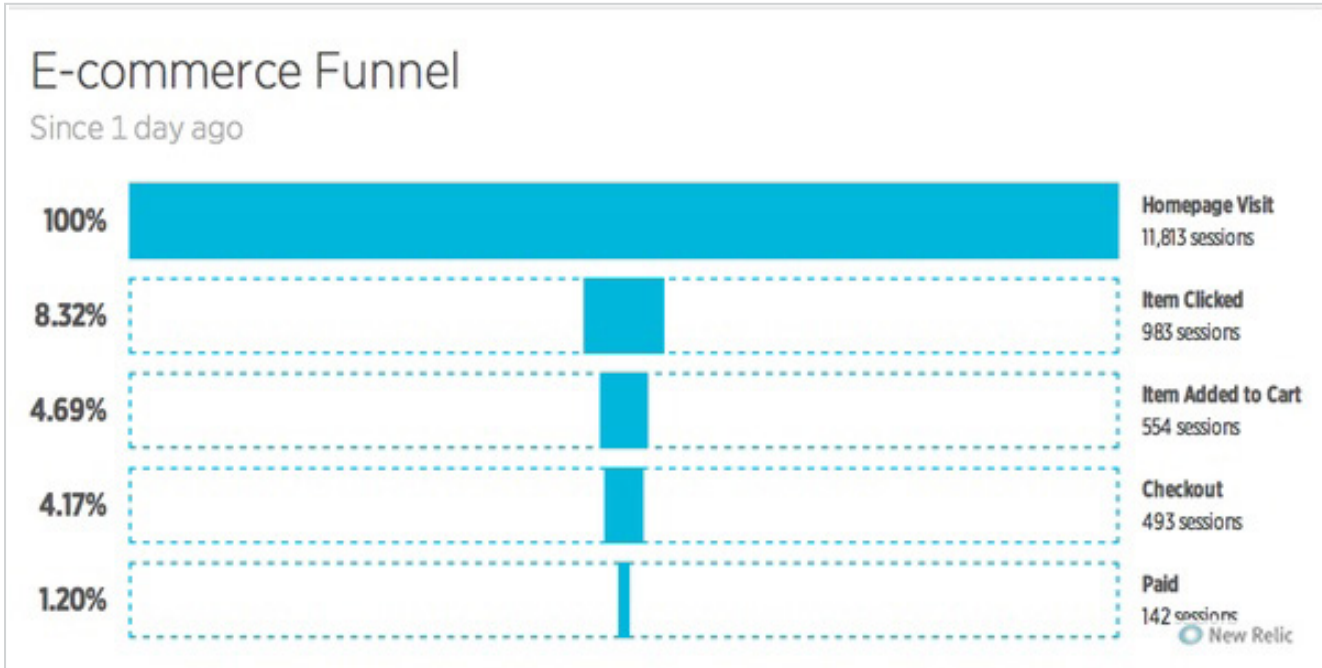
```
SELECT histogram(duration, 15, 50)
```

NCE 1 hour ago

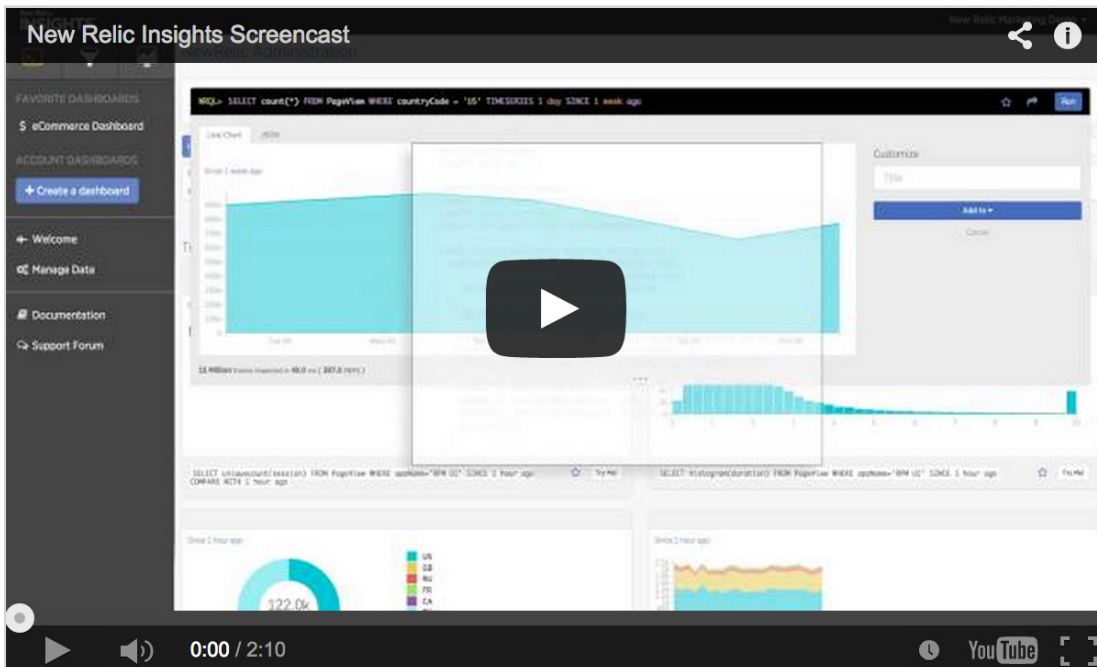
Custom attributes allow you to measure and monitor things like the amount of money in shopping carts and then compare it by city:



Or you can assess the success of your design through funnel analysis to see how many homepage visitors are making it through to completed checkouts:



Here's an introductory screencast showing how to integrate NRQL queries with customizable and sharable dashboards:



What Can You Use Insights For?

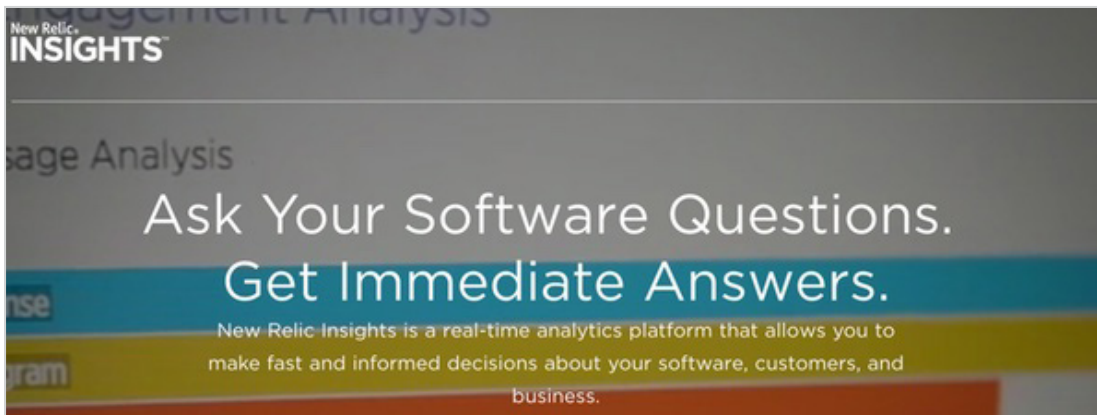
New Relic offers a number of [intriguing examples for using Insights](#) to grow your business:

- **Product Management.** Make a query about the adoption of the new features you launched today. Find out which customers are using the features and which aren't. Take action through customer loyalty or sales groups to find out why.
- **Application Developers and IT Operations.** A customer opened a support ticket about a potential bug they hit ten minutes ago. You can't reproduce it. Track this customer's interactions with your site over the last ten minutes and find the root cause.
- **Marketing.** Find out if the new marketing campaign is a homerun or a strikeout in real time. If it's a homerun, spend more. If it's a strikeout, kill the campaign before you blow your budget.
- **Sales.** Track your customer's experience and product usage during a free trial. Know immediately if a key stakeholder is having a problem with the product or not using the killer features. Give her a call.
- **Customer Loyalty and Support.** Happy customers are the best customers. Track each customer's engagement and happiness with each click of their mouse. The next time they call support, you'll already know why they're calling.
- **Mobile App Owner.** You just launched your app in a new country. Track which regions and cities have the most users, so you can be smart about spending your marketing dollars where they're most needed. And compare user session times in the new region to session times in more established regions to measure success.

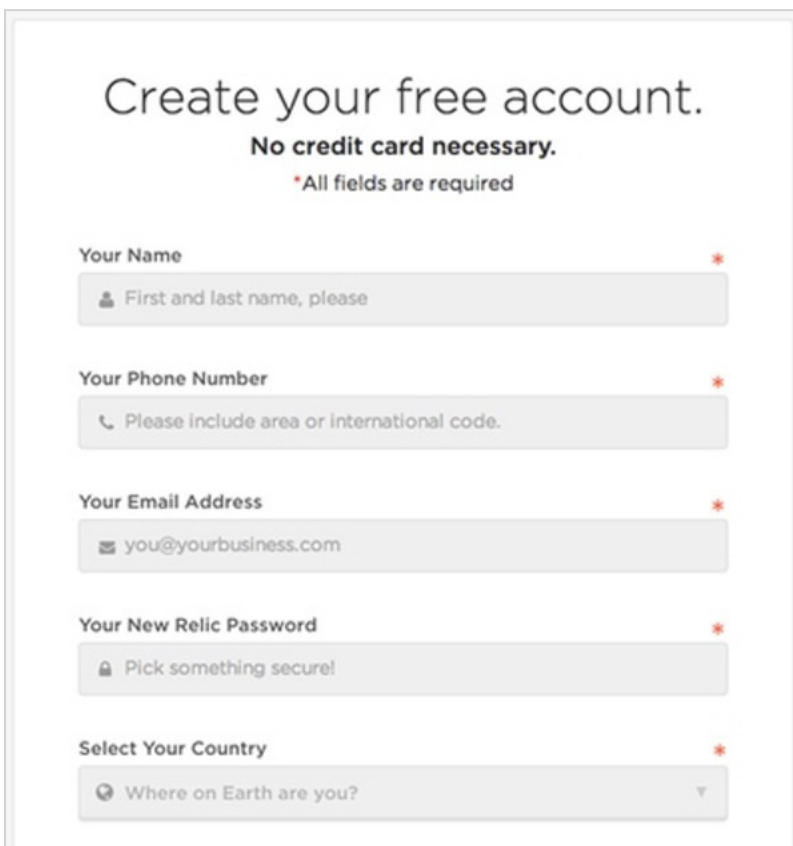
Here's how Nordstrom Rack HauteLook used the flexibility of Insights configuration to quickly optimize its shipping systems:



Getting Started With Insights



To get started, you'll need to register for your free account at New Relic:

A registration form titled "Create your free account." with the subtext "No credit card necessary." and a note "*All fields are required". The form contains five input fields, each with a red asterisk on the right side. The fields are: "Your Name" with a person icon and the placeholder "First and last name, please"; "Your Phone Number" with a phone icon and the placeholder "Please include area or international code."; "Your Email Address" with an envelope icon and the placeholder "you@yourbusiness.com"; "Your New Relic Password" with a lock icon and the placeholder "Pick something secure!"; and "Select Your Country" with a globe icon and the placeholder "Where on Earth are you?".

Once you've completed registration, follow the installation instructions on the page appropriate for your registration. Choose the correct language for your application and follow the simple steps to setup the New Relic Agent specific to your environment.

Get started with New Relic APM and New Relic Insights

- 1 Choose your language
RUBY
- 2 Get your license key
Generate license key
- 3 Install the New Relic agent with bundler.
Add the gem to your Gemfile:
gem 'newrelic_rpm'
From your application's directory:
bundle install
- 4 Download newrelic.yml
Place this file into your app's **config directory**, replacing the existing one.
Download the newrelic.yml file
(First, generate license key in step 2)
- 5 Deploy your application
- 6 See data in 5 minutes
In a few minutes, your application will send data to New Relic and you'll be able to start monitoring your application's performance.
You will also be automatically upgraded to New Relic PRO for a

Watch a video on installing the Ruby agent

Watch a video on installing the Python agent

Watch a video on installing the Java agent

Once you have your license key, you can setup and configure your New Relic Agent in minutes. Once you have deployed your application with the Agent on it, you will see this message and can dive right into your application data in minutes!

See data in 5 minutes

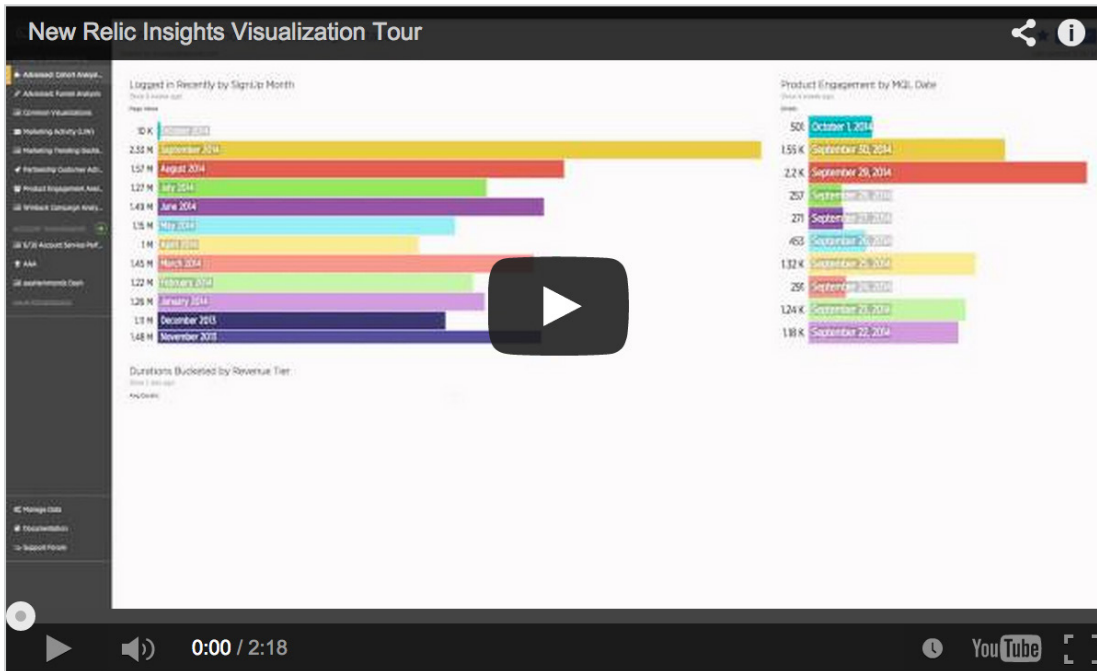
In a few minutes, your application will send data to New Relic and you'll be able to start monitoring your application's performance. You will also be automatically upgraded to New Relic PRO for a limited time.

Connect to my application

As part of your Pro Trial with New Relic, you will get access to our APM, Browser, and Insights products. With our APM and Browser products feeding in data from your applications and websites, you can begin to analyze Pageview and Transaction data in real-time in New Relic Insights!

Exploring Insights

Once data starts arriving, you can begin using Insights to study activity recorded from your website. The Insights Visualization Tour details some of the possibilities:

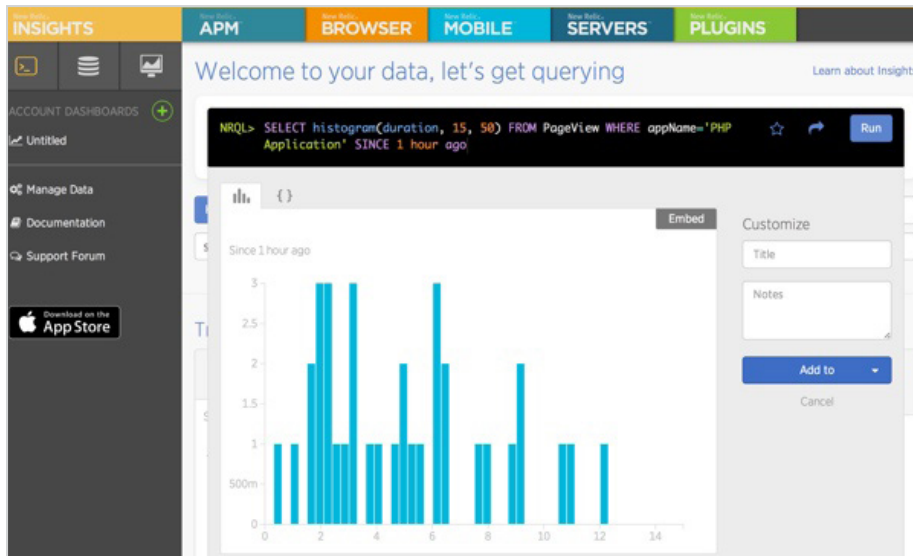


There are three main navigation areas to Insights.

1. The New Relic Query Language Page
2. The Data Explorer
3. Dashboards

1. The New Relic Query Language (NRQL) Page

The Insights home page will let you compose NRQL queries about the application data you've recorded:



The data set is based on typical APM recordings that look individually like this:

Sample PHP Application PageView event	
App ID	1,337,834
App Name	PHP Application
Backend Duration	0.53
Country Code	US
Duration	1.89
Name	WebTransaction/Uri/index.php
Page URL	http://jeffreifman.com/how-to-install-your-own-private-email-server-in-the-amazon-cloud-aws/
Session	cadadbbf8e8fcc62
Timestamp	27 Oct 10:02
User Agent Name	Safari
User Agent OS	Mac
User Agent Version	5.0






Here I'm comparing session traffic from today (Monday) with yesterday (Sunday):



Expanding Data Collection with Custom Attributes

The real power comes when you add custom attributes, as Envato and HauteLook describe in the above videos. This allows you to quickly assess specific slices of activity on your web site in real time.

Adding custom attributes to your application

 Ruby
 Java
 .NET
 PHP
 Python

List the attributes you would like to collect

eg. user_id=123, pay_level="pro"

1. Capture custom attributes on the server (Transactions)

You can include up to 255 custom attributes (per event) using the [PHP agent API](#).

Enter some key/value pairs above, then paste these generated API calls anywhere web requests are handled by your application:

```

newrelic_add_custom_parameter("user_id", 123);
newrelic_add_custom_parameter("pay_level", "pro");

```

New Relic code libraries make it easy to add custom data recording to almost any web or mobile application:

PHP agent API

The agent provides a number of extra PHP API calls which you can add to your application to fine-tune New Relic.


Recommendation: Enclose these API calls in a conditional check for the New Relic agent so that your code will work with and without the agent present.


For example:

```
if (extension_loaded('newrelic')) {
    newrelic_set_appname($name);
}
```

The API calls you can use in your scripts are:

Show All 

newrelic_set_appname (name [, license [, xmit]]) 

newrelic_notice_error (message [, exception]) 
newrelic_notice_error (unused, message, unused, unused, unused)

newrelic_name_transaction (string) 

newrelic_end_of_transaction () 

newrelic_end_transaction ([ignore]) 

Here are some additional examples of [common NRQL queries](#):

NRQL examples

You can use NRQL to query your data several ways. NRQL can query the application data collected by [New Relic APM](#), [New Relic Browser](#), and [New Relic Mobile](#). You can then use this data to answer a variety of questions. For example:

- **Unique users:** How many unique users did you have in the last week?

```
SELECT uniqueCount(user) FROM PageView SINCE 1 week ago
```

- **Unique user trends:** Were your unique user counts up or down last week compared to the week before?

```
SELECT uniqueCount(user) FROM PageView SINCE 1 week ago COMPARE WITH 1
```

- **Pageview trend graphs:** Graph the number of unique users yesterday compared with the day before?

```
SELECT count(*) FROM PageView SINCE 1 day ago COMPARE WITH 1 day ago T
```

- **OS version:** How many of your mobile users are on the latest OS version?

```
uniqueCount(uid) FROM MobileSession FACET osVersion SINCE 7 days ago
```

- **Key account Apdex:** If you have [defined custom attributes](#), you could monitor the [Apdex score](#) for a particularly important customer?

```
SELECT apex(duration, t: 0.4) FROM Transaction WHERE customerName='MrB
```

With [widgets](#) and [custom attributes](#), you can generate queries to answer all sorts of business questions. For more information about NRQL syntax, see [NRQL reference](#).

2. The Data Explorer

New Relic INSIGHTS

ACCOUNT DASHBOARDS [Create a dashboard](#) +

Manage Data

Data Explorer

Poke around your data with this handy explorer.

Event Type	# Events 24H
PageView	711
Transaction	24 Thousand

The Data Explorer allows you to drill down on page views and transactions or other custom events which you create:

PageView Explorer

Timestamp	App ID	App Name	Backend Duration	City	Country Code	Duration	Name	Page URL
27 Oct 16:55	1,337,834	PHP Application	0.1	Saint-hubert	CA	1.8	WebTransaction/Uri/index.php	http://jeffreiman.com/ho-own-private-e-mail-server-cloud-aws/install-iredmail/
27 Oct 16:55	1,337,834	PHP Application	0.2	Emden	DE	6.45	WebTransaction/Uri/index.php	http://jeffreiman.com/ho-own-private-e-mail-server-cloud-aws/install-iredmail/
27 Oct 16:53	1,337,834	PHP Application	0.5		US	2.06	WebTransaction/Uri/index.php	http://jeffreiman.com/ho-own-private-e-mail-server-cloud-aws/
27 Oct 16:48	1,337,834	PHP Application	1.22	Sydney	AU	7.88	WebTransaction/Uri/index.php	http://jeffreiman.com/chi-function-exists-or-is-define

Application					
27 Oct 16:57	1,337,834	PHP Application	0.01	wordpress.lookahead.io	500
27 Oct 16:57	1,337,834	PHP Application	0.01	wordpress.lookahead.io	500
27 Oct 16:57	1,337,834	PHP Application	0.01	wordpress.lookahead.io	500
27 Oct 16:56	1,337,834	PHP Application	0.0	wordpress.lookahead.io	200
27 Oct 16:56	1,337,834	PHP Application	0.01	wordpress.lookahead.io	500

3. Dashboards

You can add results from any NRQL query to any number of customizable dashboards, which you can then share with your team.

Here, I'm creating a Visitors by Country widget for my "Geographic Analysis" dashboard:

Welcome to your data, let's get querying Learn about Insights

```
NRQL> SELECT count(*) FROM PageView WHERE appName='PHP Application' FACET countryCode LIMIT 5 SINCE 3 day ago
```

Visitors by Country
Since 3 days ago

1,503 PAGE VIEWS

- US
- GB
- IN
- DE
- CA
- Other

Embed

Customize

Visitors by Country

Notes

Link facets to dashboard

No link

Add to

New dashboard...

Here's the resulting dashboard, which is further extensible:

New Relic INSIGHTS

NRQL> SELECT

Geographic Analysis

Created by jeff@reifman.org

Visitors by Country
Since 3 days ago

1,503 PAGE VIEWS

- US
- GB
- IN
- DE
- CA
- Other

ACCOUNT DASHBOARDS (+)

Geographic Analysis

My First Dashboard

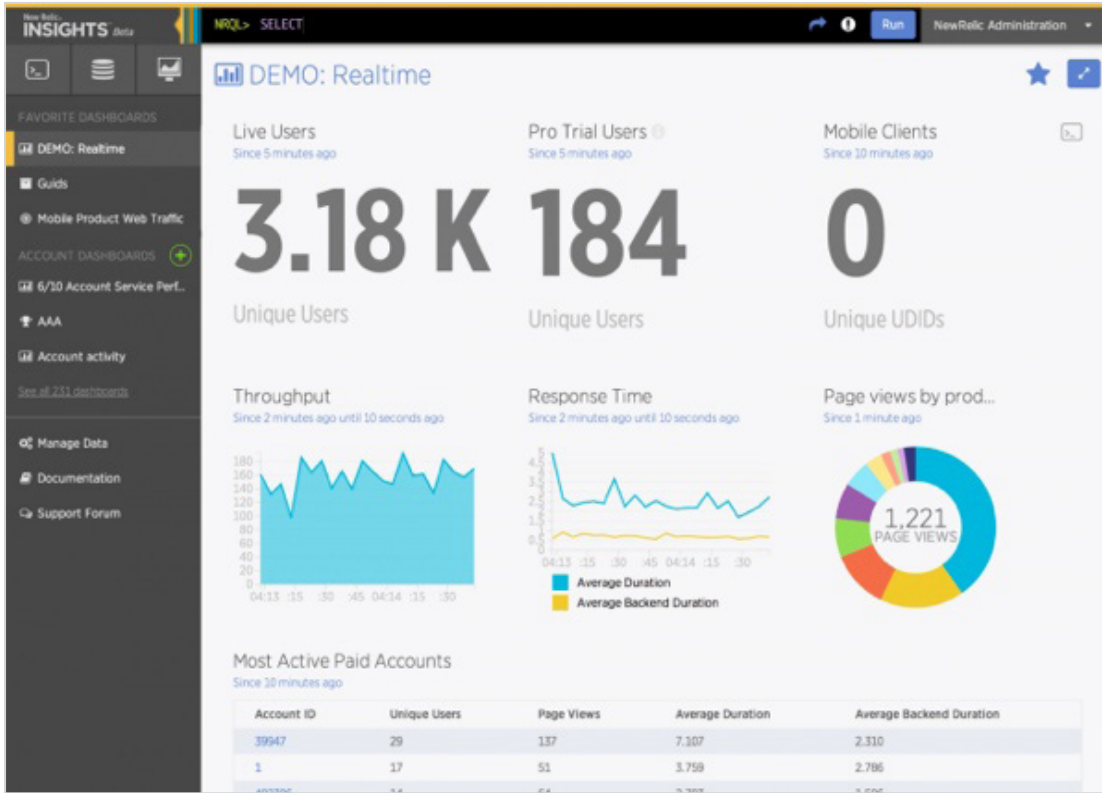
Untitled

Manage Data

Documentation

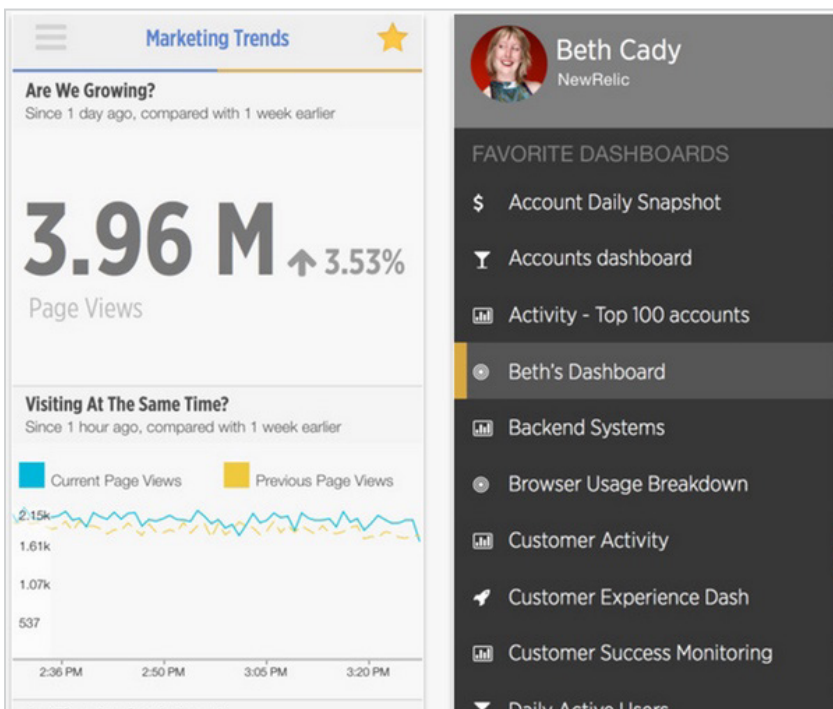
Support Forum

Here's an example of a more advanced dashboard from the New Relic documentation. It shows the number of live users, trial users, throughput, response time, etc.



New Relic Mobile Application

You can also browse Insights from your smartphone and tablet. New Relic offers free mobile applications for both [iOS](#) and [Android](#):



The Community Discussion Forum






New Relic just launched a [community forum](#) to help you quickly find answers, exchange information with your fellow New Relic users, and interact with their support and engineering teams when you need more hands-on assistance.

Welcome to the New Relic Community Forum! X

This is a public forum for users to discuss questions around software analytics, performance monitoring, and using New Relic products.

To participate, just [Log In](#) with your New Relic account. Make sure to also review our [Community Guidelines](#), [Terms of Service](#), and [Privacy Policy](#).

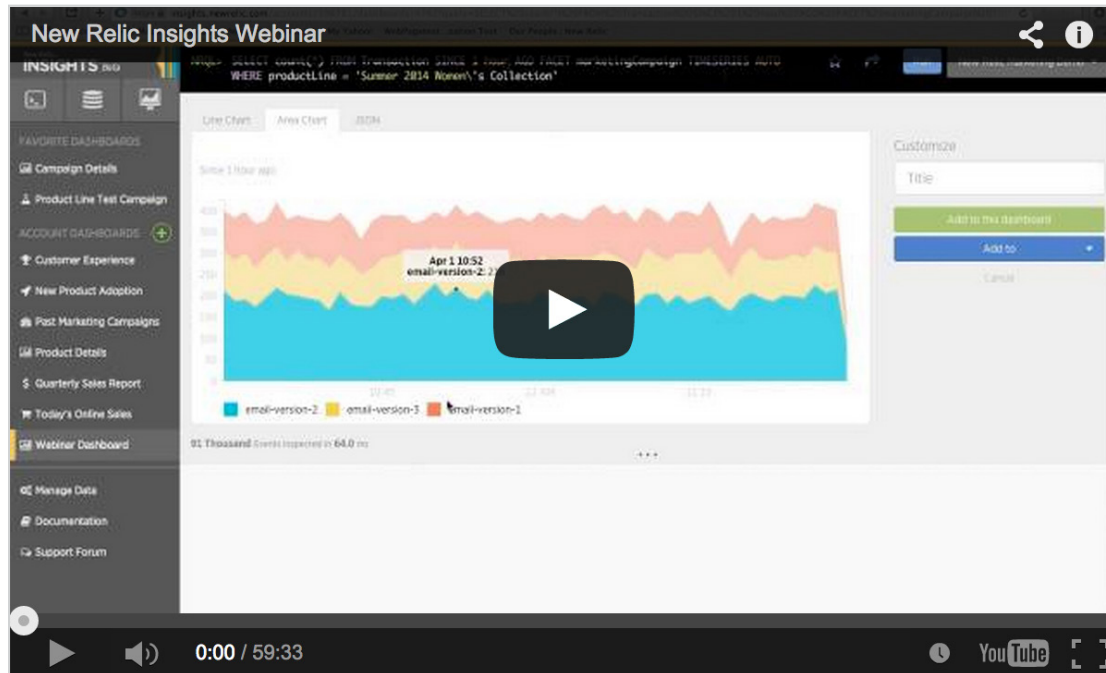
all categories ▾ **Categories** Latest

Category	Latest	Topics	Posts
<p>Meta </p> <p>Here you can discuss any and all things related to the New Relic online community. Bug reports, suggestions, and feedback are welcome!</p>	<p> Community Guidelines Jan 20</p> <p> New Relic University Videos Sep 11</p> <p> Community Forum Digest: Issue 1 26d</p>	<p>3 <small>in last month</small></p> <p>28 <small>in last year</small></p>	<p>9 <small>in last month</small></p> <p>106 <small>in last year</small></p>
<p>Dev Chat </p> <p>Sit back, relax, enjoy a coffee and chat about the latest and greatest in the tech world.</p>	<p>Gearing Up for DevOps: 4 Steps You Need to Follow 33m</p> <p>The 8 Essential Traits of a Great Open Source Contributor 4d</p> <p>The Future of Programming 6d</p>	<p>2 <small>in last week</small></p> <p>3 <small>in last month</small></p>	<p>5 <small>in last week</small></p> <p>6 <small>in last month</small></p>

Looking Ahead

I hope you've found this overview to be intriguing. New Relic Insights brings some amazing and powerful inquiry tools within reach of businesses of all sizes.

If you'd like a more detailed tour of Insights, watch the hour long webinar below. You can also [request a guided demo](#) of New Relic Insights from their website (or by calling 1-888-643-8776).



The New Relic Insights trial lasts 14 days. After that, Insights costs \$250/month and requires a paid account for [New Relic APM](#); this provides storage for 75 million events. Pricing increases incrementally based on the number of events you store.

If you have any questions or suggestions, please post them in the comments. If you'd like to keep up on my future Tuts+ tutorials and other series, please [visit my author page](#) or follow [@reifman](#).

Related Links

- [New Relic Insights Product Information](#)
- [New Relic Adds New Analytics, Visualization, and Custom Attributes](#)
- [New Relic Insights Documentation](#)
- [Front-End Monitoring with New Relic Browser \(Tuts+\)](#)
- [Using New Relic to Monitor WordPress Performance \(Tuts+\)](#)