




# REST Services in Action: Using RESTful APIs with HPE NonStop Applications

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# Agenda

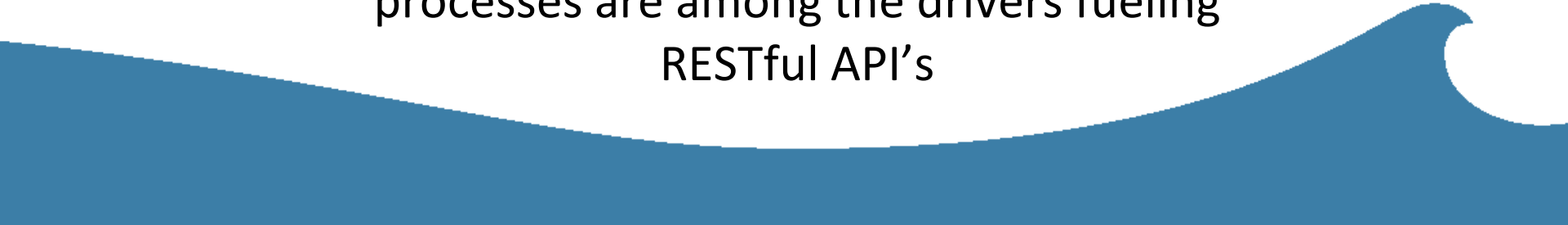
- REST API Overview
    - Market Adoption
    - APIs in Financial Services
  - NuWave REST-based Middleware
    - Overview LightWave Server & LightWave Client
  - LightWave Demos
  - Summary – Q&A
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# What is REST?

## REpresentational State Transfer

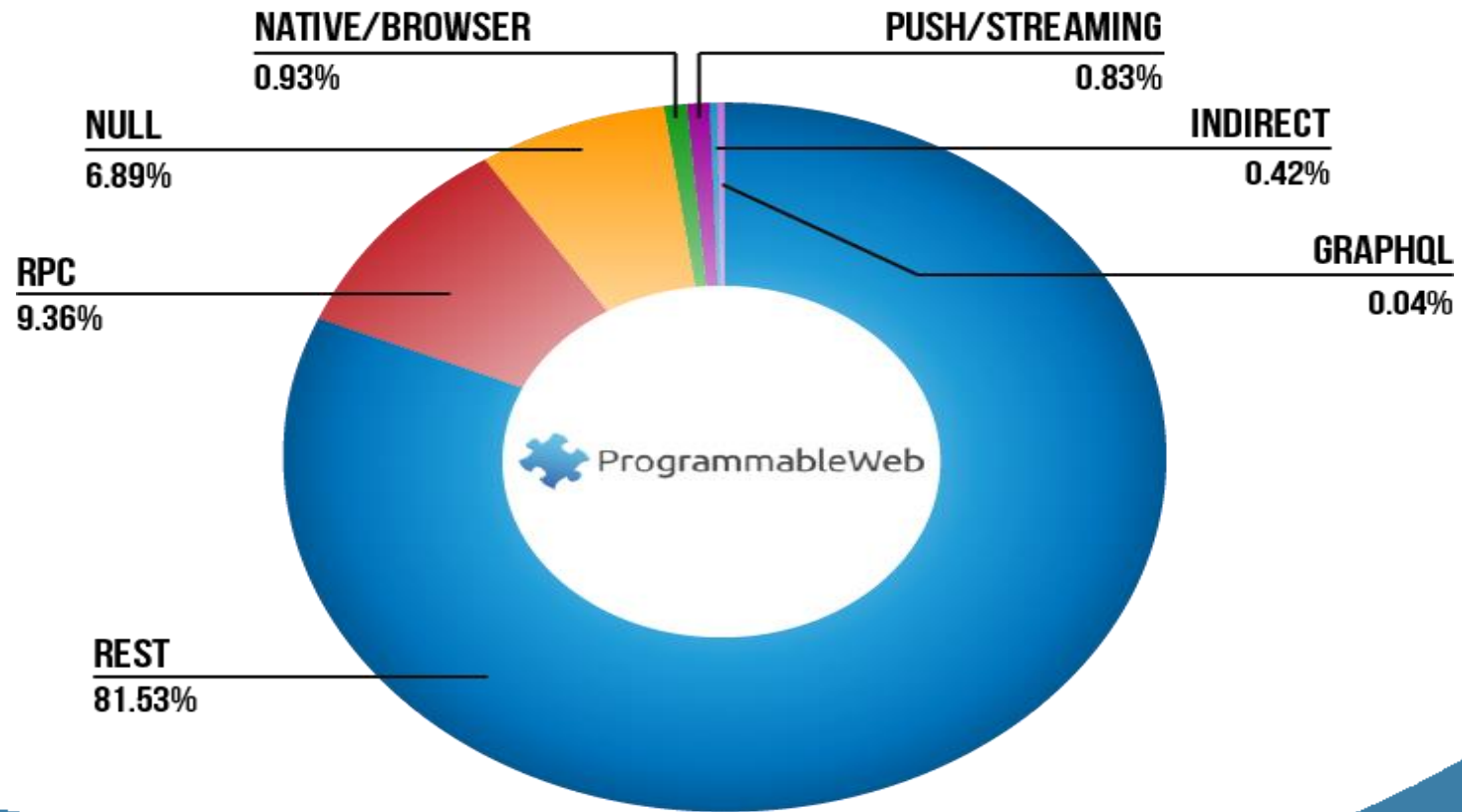
*An architectural style for designing networked applications based on the standard HTTP protocol*

Mobile and cloud applications, social networking websites, and automated business processes are among the drivers fueling RESTful API's



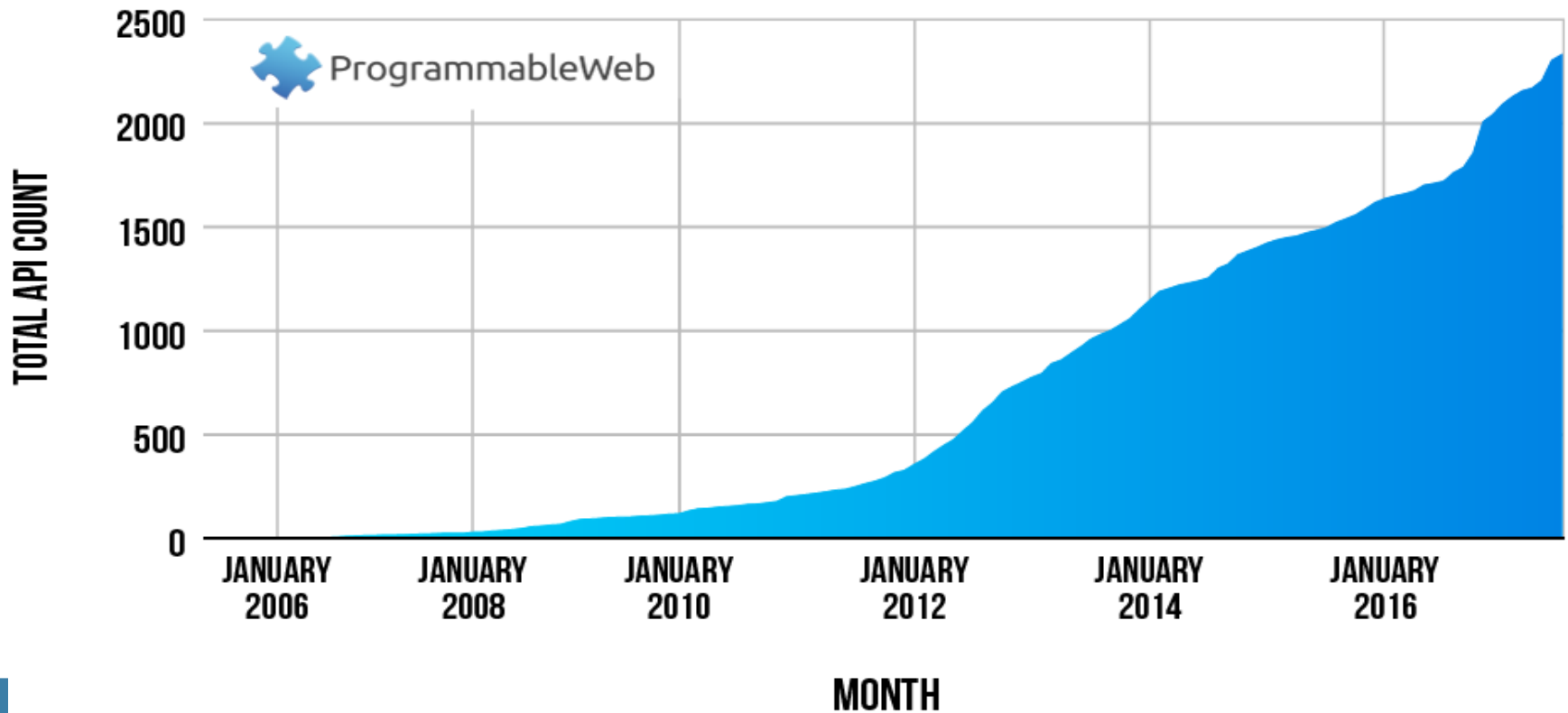
# Which API Types and Architectural Styles are Most Used?

## ARCHITECTURAL STYLES RECORDED IN PROGRAMMABLEWEB DIRECTORY




# Financial API Growth Tied to Open Banking and PSD2

**GROWTH IN FINANCIAL RELATED  
(FINANCIAL, BANKING, PAYMENTS, MONETIZATION) APIS SINCE 2005**



# Financial APIs and PSD2


*[Programmable Web Studies](#) state that 'the majority of banks recognize that an open banking platform is the endgame for the industry.' That recognition combined with regulatory pressure such as [the European Union-driven Revised Payment Service Directive] [PSD2](#) has meant that more Financial APIs than ever are now being released."*



# REST-Based Middleware

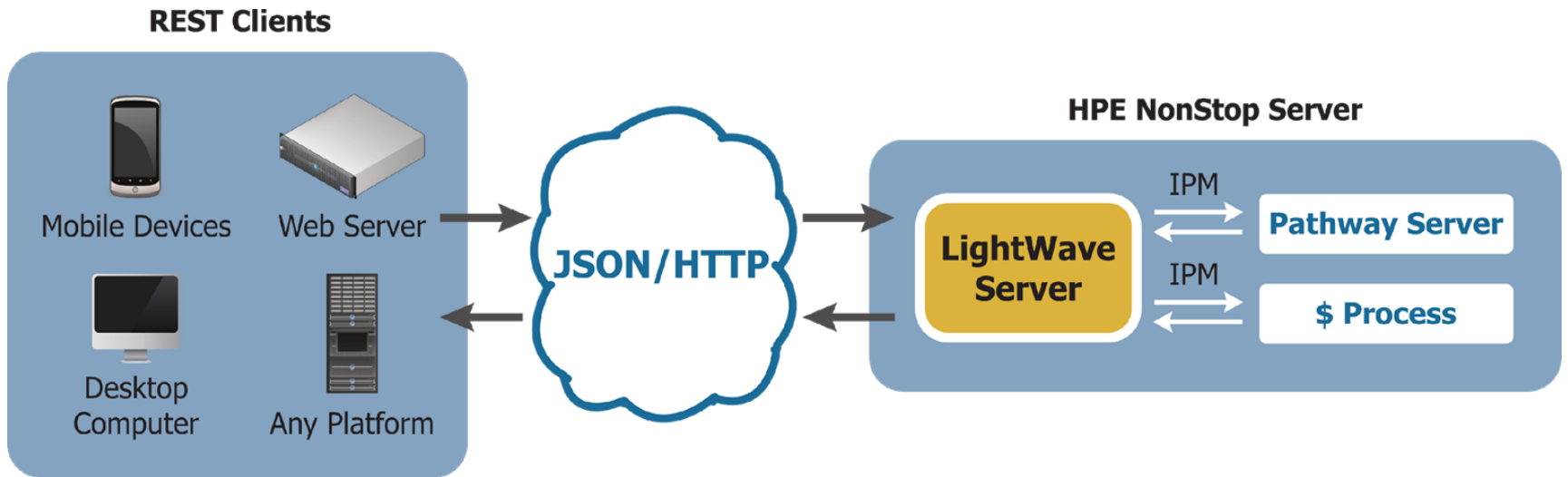
- LightWave Server
  - Server-side middleware (NonStop as server)
  - Expose NonStop applications as REST services
- LightWave Client
  - Client-side middleware (NonStop as client)
  - Access REST services from NonStop

# LightWave Server Use Cases

- Provide services that allow customers and business partners to place orders, check inventory, or make payments.
  - Support dashboards that display NonStop application status
  - Integrate NonStop-based applications with other enterprise applications and API gateways
  - Develop mobile or web applications that utilize information stored on your NonStop
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# LightWave Server

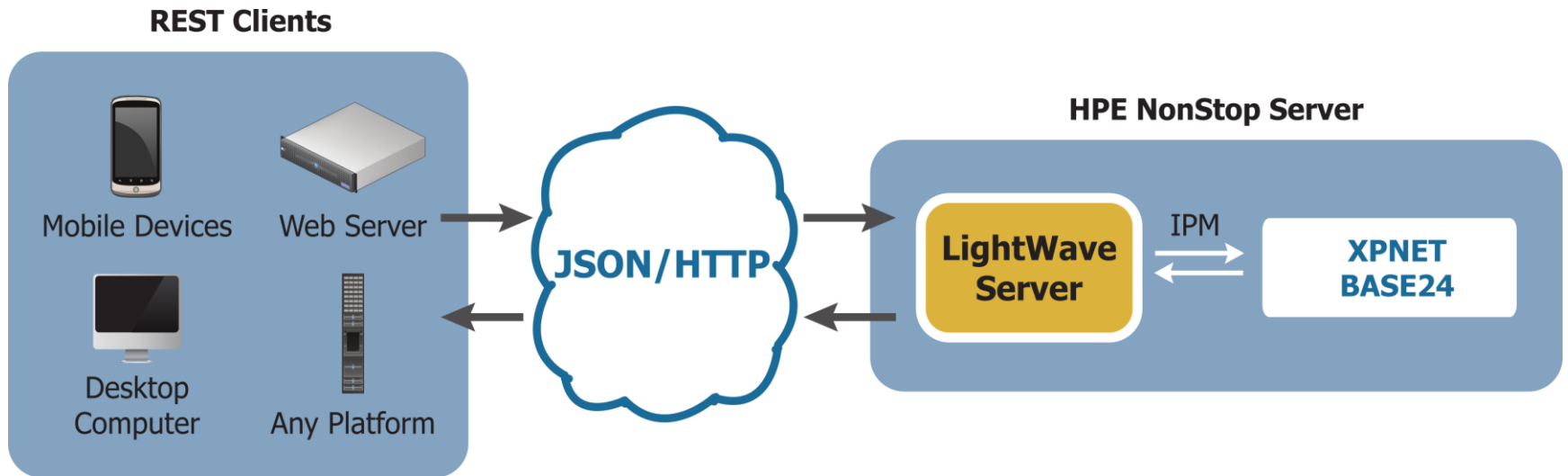


# LightWave Server Use Cases – BASE24


- Quickly modernize “green screen” management screens
- Allow simple access to BASE24 functions, as Web services
  - Internal – other in-house applications access services
  - External – other banks and partners access services
- Break up BASE24 transactions into Microservices



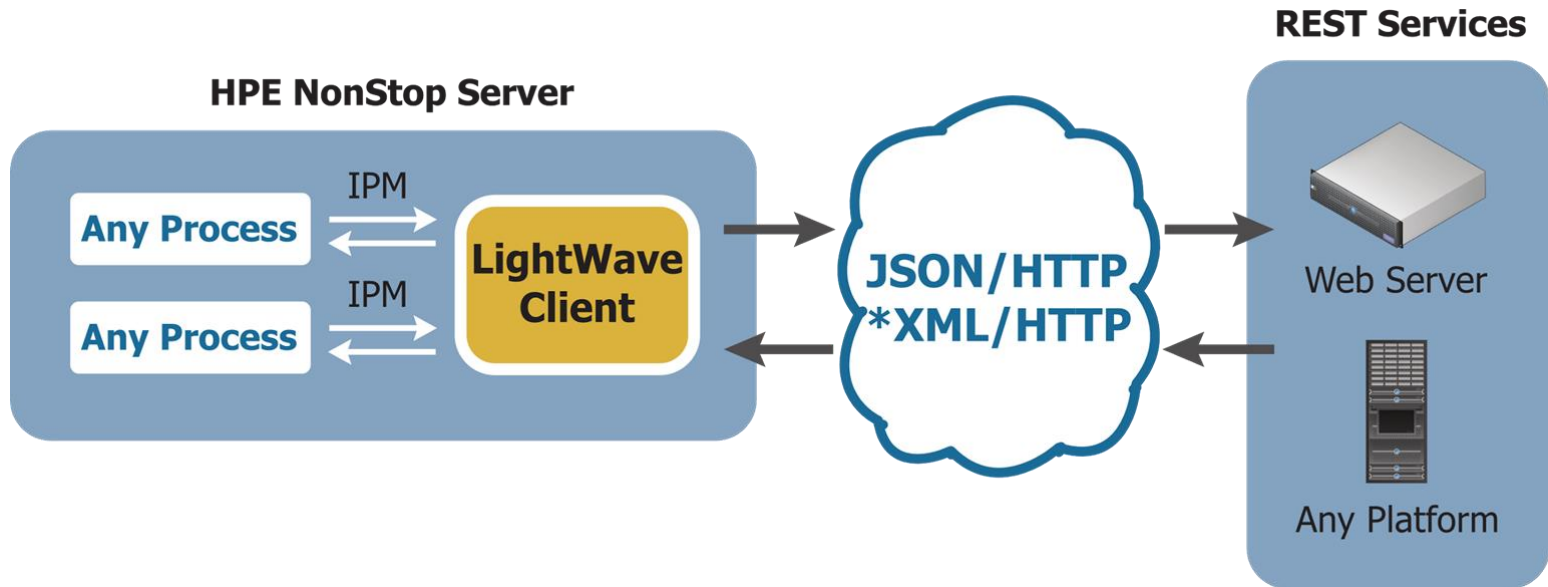
# LightWave Server – BASE24




# LightWave Client Use Cases

- Use services provided by business partners to check inventory, place orders, obtain delivery schedules, etc.
  - Integrate NonStop applications with ERP or CRM systems
  - Access real-time securities pricing, currency exchange rates, and other time-sensitive data
  - Integrate NonStop applications with enterprise API gateways
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# LightWave Client



# LightWave Client Use Cases – BASE24

- Integrate external services as part of the BASE24 transaction
  - Perform rules or fraud lookup against external Web service
  - Rapidly adjust to new payment methods and integrate into existing payment network as the banking industry changes
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# LightWave Features

- **NonStop Fundamentals**
    - Runs on Guardian - OSS not required
    - Available on TNS/E and TNS/X systems
    - Fault-Tolerant, Supports TMF
  - **Performance Monitoring**
    - Process Event Logging
    - Diagnostic Logging
    - HTTP Logging
  - **Rapid Development**
    - Standards-Based (HTTP, SSL/TLS, JSON)
    - Easy to Use
    - Development Tools included
    - Install and running in 30 minutes
- 

# Demonstrations





# REST Resources

- Examples
  - Customer
  - Product
  - Part
  - Order
  - Account
  - Employee

# Example REST URIs

| URI                    | Description                             |
|------------------------|---|
| /customer/1234         | Customer with ID 1234                   |
| /part                  | Collection of all parts                 |
| /part/ABC-123          | Part with ID ABC-123                    |
| /account/456/order     | Collection of orders for account ID 456 |
| /account/456/order/ABC | Order ID ABC for account ID 456         |

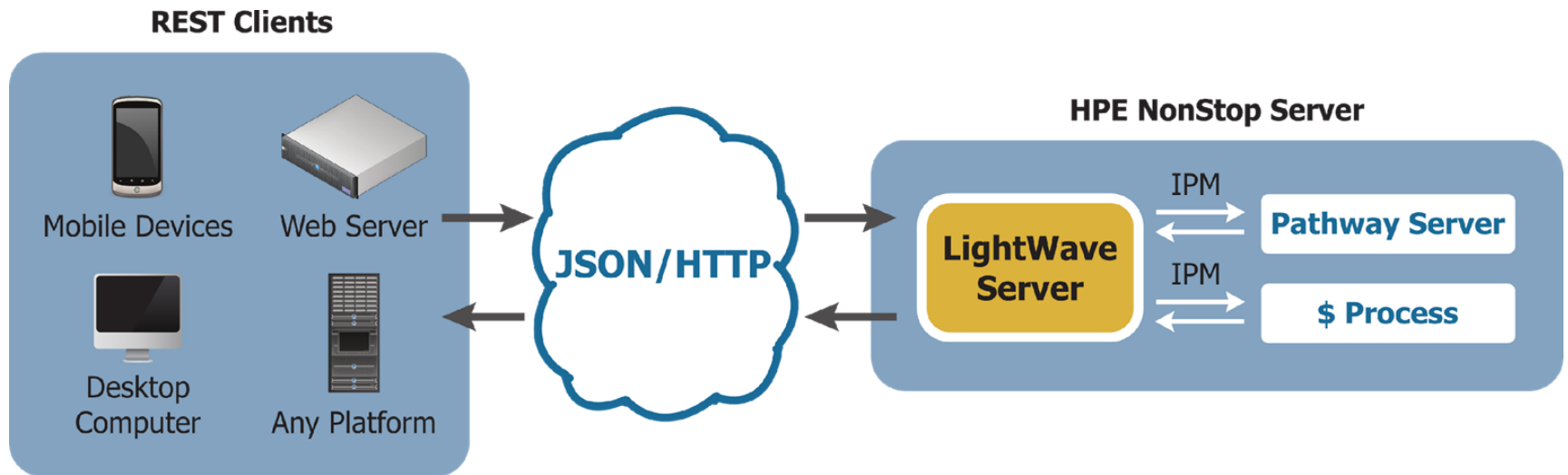
# Example CRUD Operations

| Method | URI            | Description  |
|--------|----------------|--|
| POST   | /employee      | Creates a new employee with server-assigned id (adds a new employee to the collection) |
| GET    | /employee/1234 | Read and return details for employee 1234  |
| PUT    | /employee/1234 | Update details for employee 1234   |
| DELETE | /employee/1234 | Delete employee 1234   |

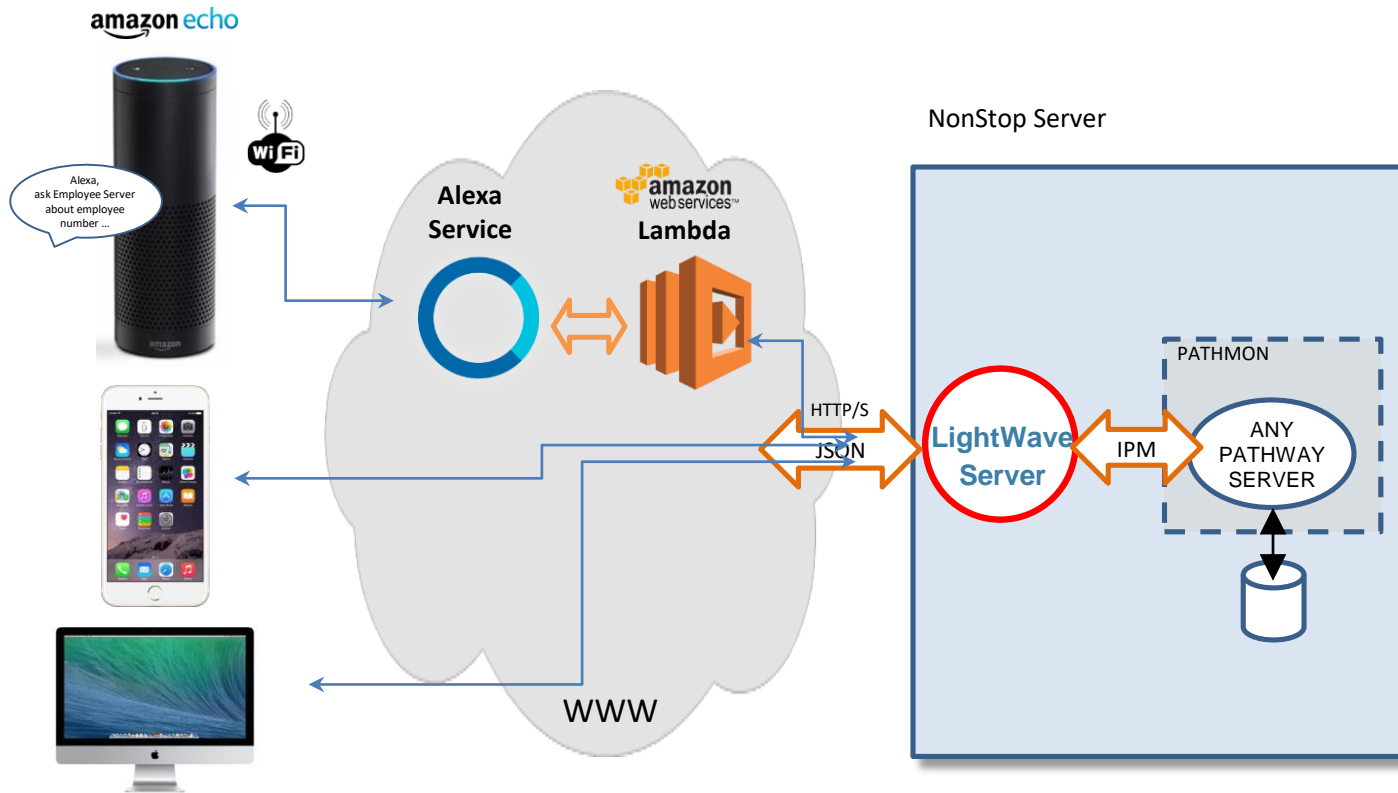
# LightWave Server Demo



# LightWave Server



# Application Diagram



# Employee Server

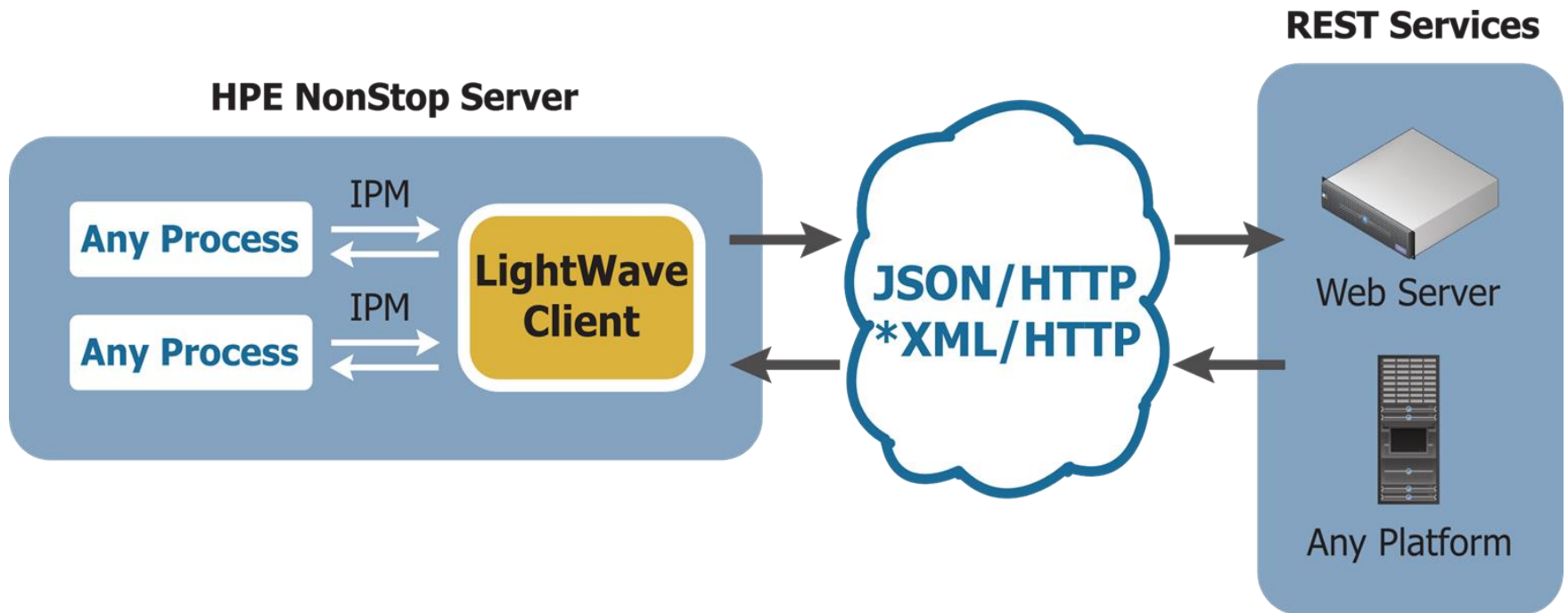
- [Launch Employee Server](#)

# LightWave Client Demo





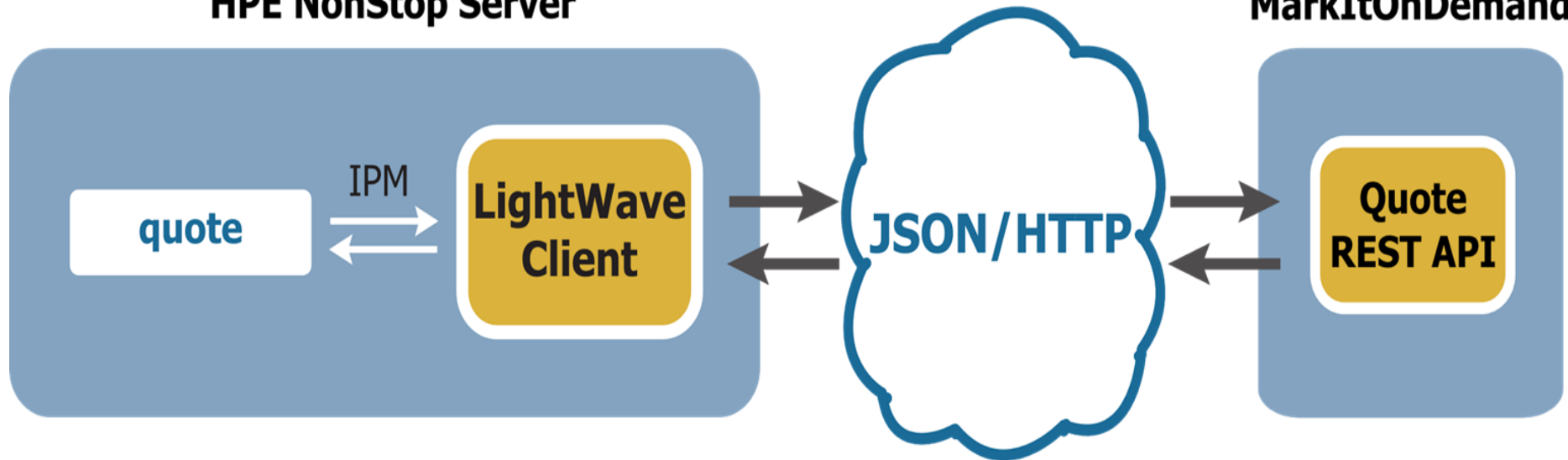
# LightWave Client



# Stock Quote Demo

**HPE NonStop Server**

**MarkItOnDemand**

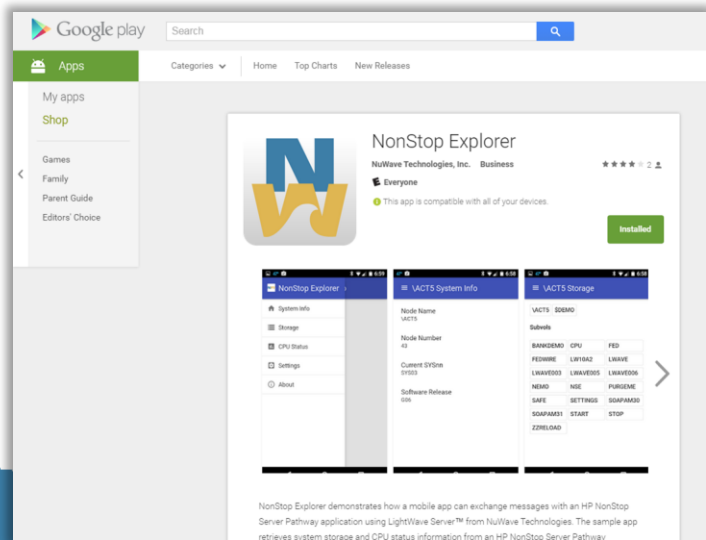


# Stock Quote


- [Launch Stock Quote](#)

# Sample LightWave Client & Server Applications

- Browser-based sample apps: [www.github.com/nuwavetech](http://www.github.com/nuwavetech)
- Android mobile app: Go to Google Play Store and search for “NuWave Explorer”



# Summary

- REST is the most widespread standard in the adoption of internet services
  - LightWave RESTful interfaces maintain the security, reliability and scalability of your NonStop server and applications
  - LightWave offers an intuitive development platform with rapid deployment backed by NuWave's NonStop experts
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# Questions?

## Product Info:

- [www.nuwavetech.com](http://www.nuwavetech.com)
- [docs.nuwavetech.com](http://docs.nuwavetech.com)

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