



Cloud Computing *for Science*. Simplified.

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What is cloud computing?



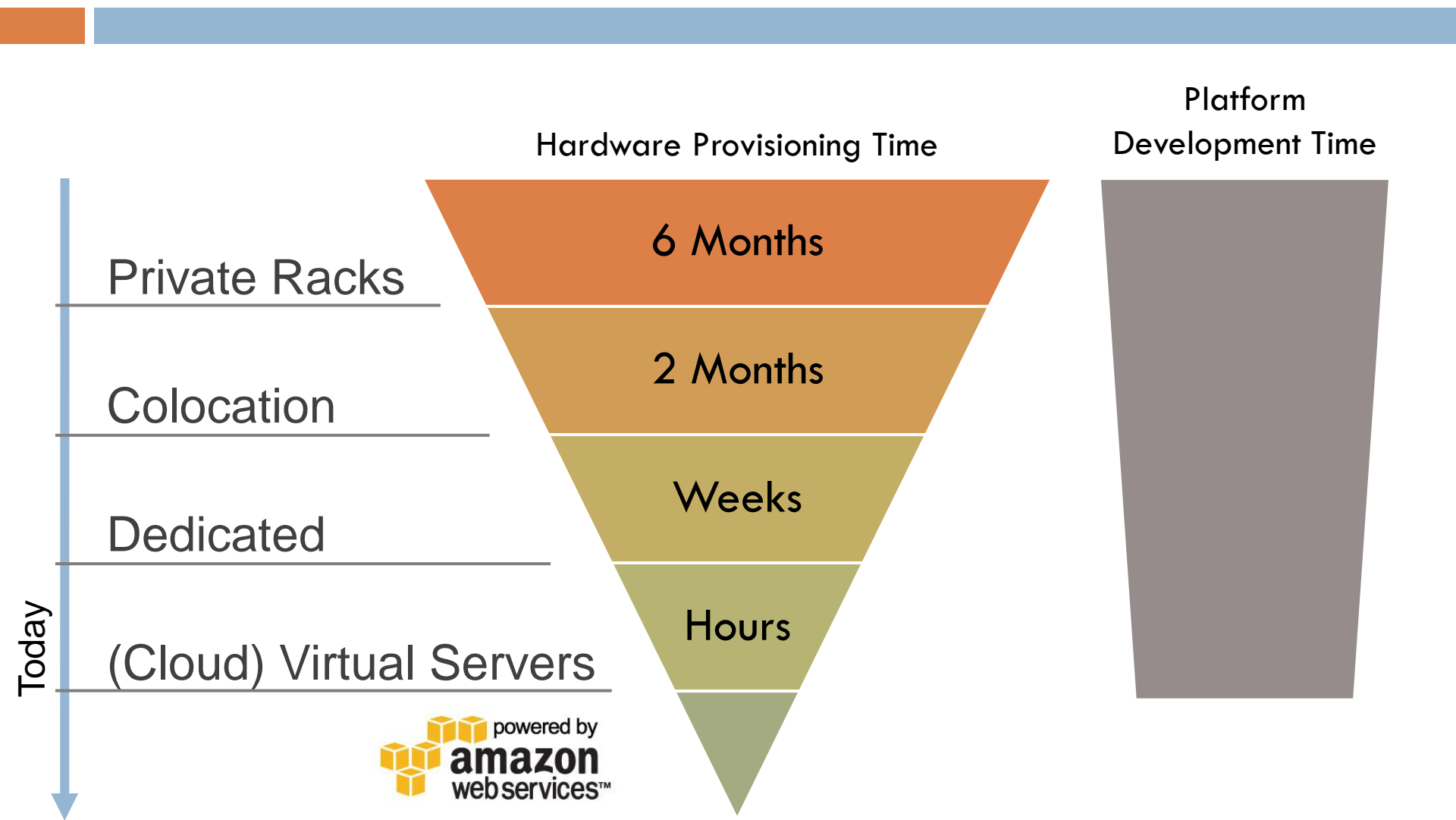
Cloud computing is a style of computing in which **dynamically scalable** and often **virtualized** resources are provided as a service over the Internet.

Cloud Characteristics



- Low upfront costs
 - ▣ Servers are not purchased, only rented (utility computing)
- Multi-tenant
 - ▣ Centralization of infrastructure geographically
 - ▣ High-levels of utilization and efficiency
- Scalable and Agile
 - ▣ On-demand provisioning of resources

Computing Power History



The Next Step





Computing Power as a Utility



1000+ Cores



Always available

Accessible in seconds



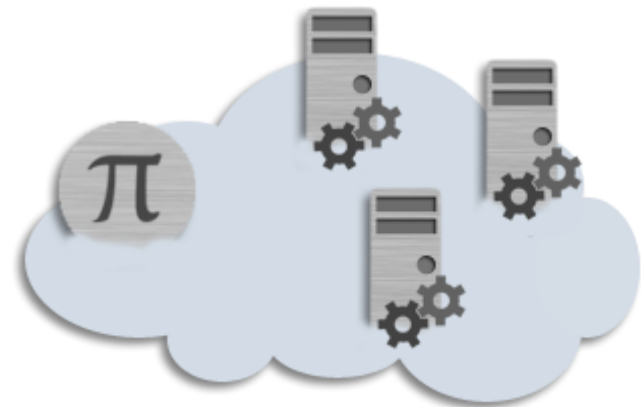
PiCloud Platform



- Python-integrated cloud computing platform

```
> import cloud  
> from myfuncs import f1, f2, f3  
>
```

PiCloud User



PiCloud

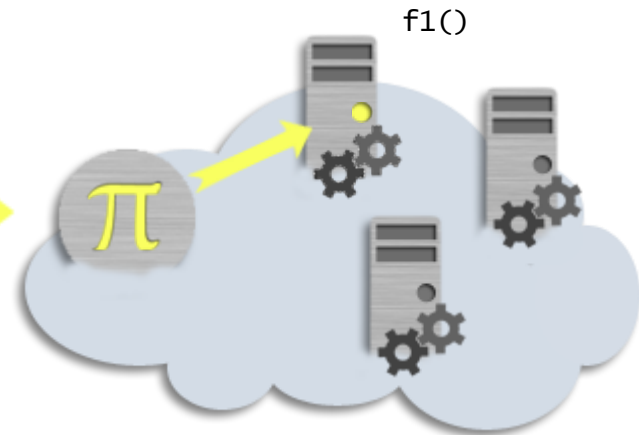
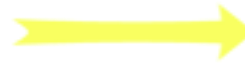
PiCloud Platform



- Python-integrated cloud computing platform

```
> import cloud
> from myfuncs import f1, f2, f3
> id1 = cloud.call(f1)
>
```

PiCloud User



PiCloud

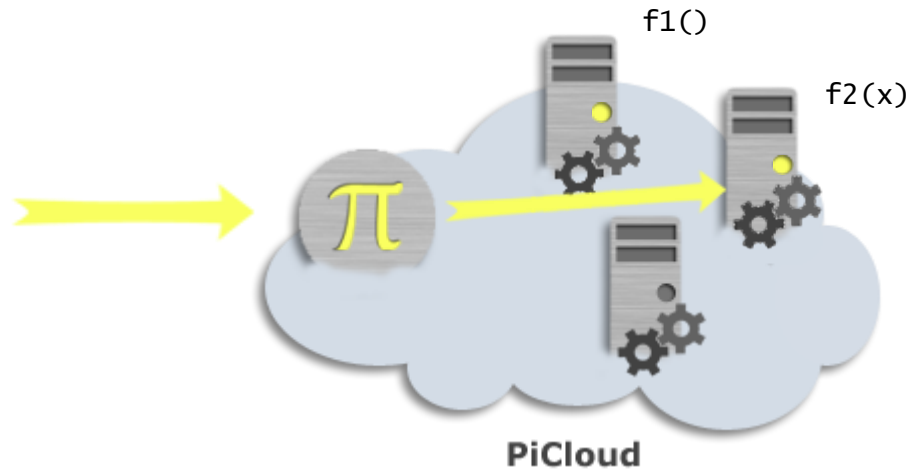
PiCloud Platform



- Python-integrated cloud computing platform

```
> import cloud  
> from myfuncs import f1, f2, f3  
> id1 = cloud.call(f1)  
> id2 = cloud.call(f2, x)
```

PiCloud User



PiCloud Platform



Python-integrated cloud computing platform

Unified Monitoring

PiCloud CONTROL PANEL Welcome, Ken@Elkabany.com | [Settings](#) | [Logout](#)

- Get Started
- API Keys
- Jobs**
- Analytics
- Packages
- Configuration
- Payment
- Forums
- Support
- Documentation

Displaying jobs

Starting with job ID: 250300

select: all clear actions: display: 10 20 30 50 100 << older refresh

	id	parent	key	hostname	function	label	created	status
<input type="checkbox"/>	250300		2	coreofthebrain-d	__main__ffmpeg at <stdin>:1		2010-6-7 22:14:58	✓
<input type="checkbox"/>	250299		2	coreofthebrain-d	__main__ffmpeg at <stdin>:1		2010-6-7 22:14:37	✓
<input type="checkbox"/>	250298		2	coreofthebrain-d	__main__ffmpeg at <stdin>:1		2010-6-7 22:13:48	✓
<input type="checkbox"/>	map[250268,250297]		2	coreofthebrain-d	__main__.sq at /usr/bin/pi-console.py:274		2010-6-7 21:51:52	✓
<input type="checkbox"/>	map[250238,250267]		2	coreofthebrain-d	__main__.sq at /usr/bin/pi-console.py:274		2010-6-7 21:51:29	✓
<input type="checkbox"/>	250237		2	coreofthebrain-d	__main__hi at <stdin>:1		2010-6-7 0:32:10	!
<input type="checkbox"/>	250236		2	coreofthebrain-d	__main__<lambda> at <stdin>:1		2010-6-6 22:36:31	✓
<input type="checkbox"/>	250235		2	braincore-m	__main__<lambda> at <stdin>:1		2010-6-6 18:24:11	✓
<input type="checkbox"/>	250234		2	braincore-m	__main__<lambda> at <stdin>:1		2010-6-6 18:22:57	✓
<input type="checkbox"/>	map[249734,250233]		2	coreofthebrain-d	__main__.sq at /usr/bin/pi-console.py:274		2010-6-3 2:33:33	✓
<input type="checkbox"/>	map[249634,249733]		2	coreofthebrain-d	__main__.sq at /usr/bin/pi-console.py:274		2010-6-3 2:33:9	✓
<input type="checkbox"/>	map[249534,249633]		2	coreofthebrain-d	__main__.sq at /usr/bin/pi-console.py:274		2010-6-3 2:32:54	✓
<input type="checkbox"/>	249533		2	coreofthebrain-d	__main__<lambda> at <stdin>:1		2010-6-1 22:47:35	✓

Select a Job by ID

Job ID:

Filters ?

Between Dates:
From:
To:

Api Key:

Active
 2
 26
 637
 1379

Status:

queued
 processing
 done
 error
 killed
 stalled ?
 waiting ?

Label:

No label

PiCloud in Action



- AutoTagger
 - ▣ Facebook photo-tagging assistant



- Basic Functionality
 - Detect and extract faces from a single photo
 - Repeatedly apply face detection to all photos in an album



Goals



□ Python-integrated cloud computing platform

Elastic

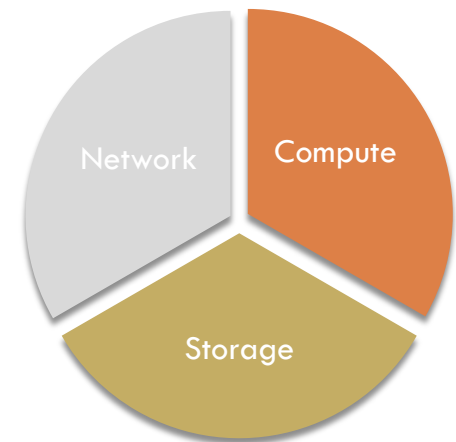
- Pay as you Use
- On-demand access to Massive Parallelization

Lock-in Free

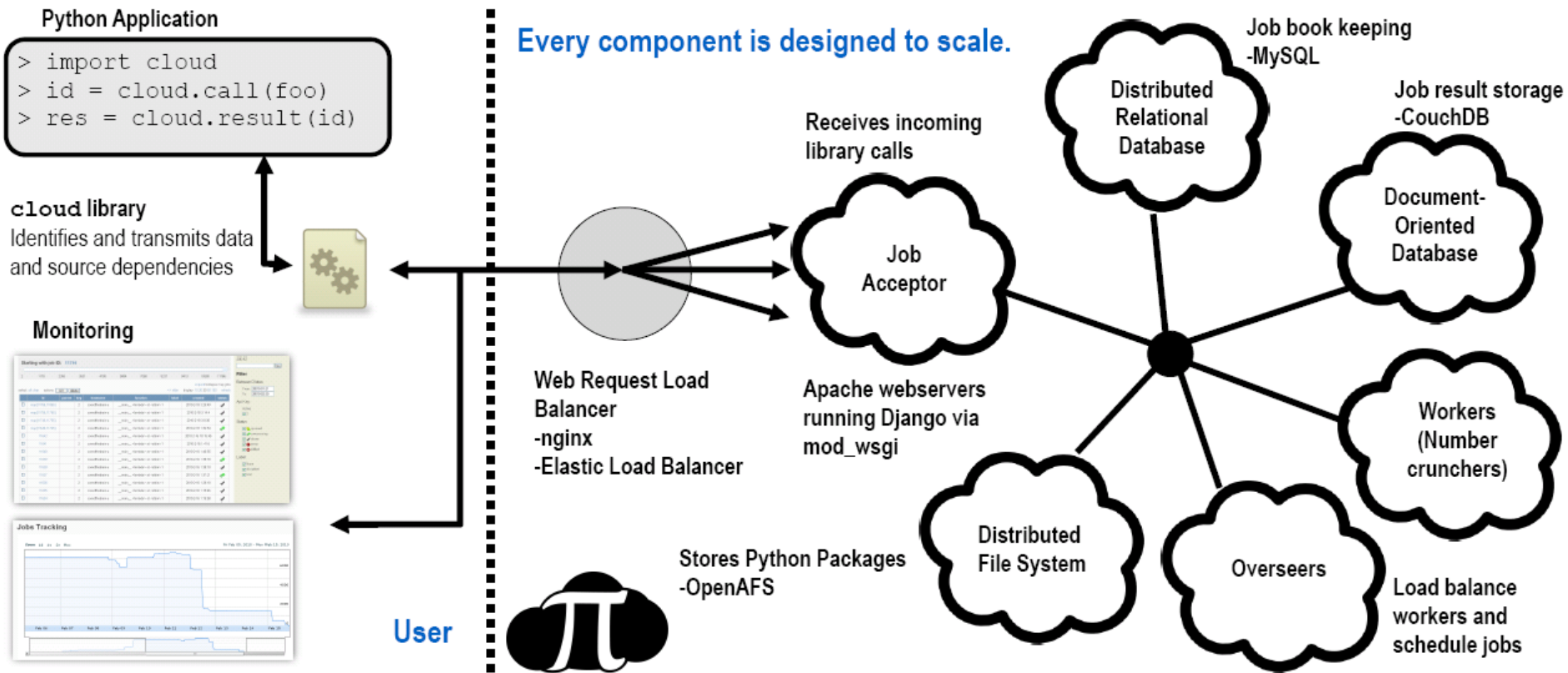
- Data can live anywhere and in any form

Easy to use

- Developer friendly; Minimal API
- You're already using the "language of the cloud"



Architecture



Scientific Computing



- We use the Enthought Python Distribution
 - Includes 75+ of the latest scientific packages
 - Numpy, Scipy
- PiCloud can accelerate all parallelizable computation
 - Protein Analysis
 - Cryptography
 - Astronomical and geological data analysis
 - Neural readings analysis



Conclusion



- “The cloud” is making computing resources available and accessible for all.
- Using the cloud doesn’t have to be difficult.
- PiCloud can help you!
 - ▣ Try us out at <http://www.picloud.com>
 - ▣ Stop by our table and say hi 😊