

AWS vs Azure

Jesús Rodríguez Heras
Carlos Llamas Jaén
Iván Castillo Caro
Sisic Dino

21 de mayo de 2019

Índice

- 1 AWS vs Azure
 - AWS
 - Azure
- 2 Comparación de los servicios ofrecidos por AWS y Azure
 - Creación de máquinas virtuales
 - Creación de máquinas virtuales en AWS
 - Creación de máquinas virtuales en Azure
 - Creación de webs
 - Servicios Web
 - Creación de webs en AWS
 - Creación de webs en Azure
 - Creación de servicios IoT
 - Creación de servicios IoT en AWS
 - Creación de servicios IoT en Azure

Índice

- 1 AWS vs Azure
 - AWS
 - Azure
- 2 Comparación de los servicios ofrecidos por AWS y Azure
 - Creación de máquinas virtuales
 - Creación de máquinas virtuales en AWS
 - Creación de máquinas virtuales en Azure
 - Creación de webs
 - Servicios Web
 - Creación de webs en AWS
 - Creación de webs en Azure
 - Creación de servicios IoT
 - Creación de servicios IoT en AWS
 - Creación de servicios IoT en Azure

AWS

What is AWS?

Amazon Web Services (AWS), is a collection of public cloud computing web services launched by Amazon.

Features of AWS

- Launched 13 years ago.
- Cloud platform, offering over 165 fully featured services from data centers globally.
- Largest community of customers and partners.
- Fastest pace of innovation.
- Most proven operational expertise.
- Only pay for what you use.
- Redundancy and availability across the world.

Capacities of AWS

- Highly durable storage: Amazon Glacier, Amazon S3, Amazon EBS
- Low cost computing: Amazon EC2
- High performance data bases: A. Redshift, A. DynamoDB, A. ElastiCache, A. RDS
- Managing tools: A. CloudWatch, AWS IAM, AWS CloudFormation, AWS Beanstalk

Limits of AWS

- **Amazon EC2:** Has limits on both the type of instance (virtual machine) that can be used and the number of hours in a month (750 Linux/750 Windows).
- **Amazon S3:** You have a limit on the amount of storage that can be used and the frequency with which you can call certain operations each month.
- **Amazon RDS:** You have a limit of 750 hours per month during the first 12 months. Turning on an instance three hours is the same as turning on an instance three times in one hour.

Azure

What is Azure?

It is a collection of public cloud computing web services launched by Microsoft.

Features of Azure

- Launched in 2010.
- Collection of various cloud computing service.
- Integrated suite of tools, templates, and managed services.
- It provides software as a service (SaaS), platform as a service (PaaS) and infrastructure as a service (IaaS).
- Ideal for businesses that utilize Windows or Linux for their operations.
- Has over 100 services equipped with end-to-end features.

Azure

Capacities of Azure

- Build websites with ASP.NET, PHP or Node.js.
- Migrate applications and infrastructure.
- SQL Database.
- Caching.
- CDN.
- Virtual Network.
- Deploy and run Windows Server and Linux virtual machines.
- Mobile Services.
- Cloud Services.
- Business Analytics.
- Hadoop.
- Media Services.

Limits of Azure

In the student version, Azure has the following limits:

- 750 hours of virtual machines for both Linux and Windows.
- 128GB of SSD storage.
- 250GB of a standard S0 instance of SQL databases.
- 1500 hours of dynamic IP for virtual machines.

Índice

- 1 AWS vs Azure
 - AWS
 - Azure
- 2 Comparación de los servicios ofrecidos por AWS y Azure
 - Creación de máquinas virtuales
 - Creación de máquinas virtuales en AWS
 - Creación de máquinas virtuales en Azure
 - Creación de webs
 - Servicios Web
 - Creación de webs en AWS
 - Creación de webs en Azure
 - Creación de servicios IoT
 - Creación de servicios IoT en AWS
 - Creación de servicios IoT en Azure

Creación de máquinas virtuales en AWS

Actividades Google Chrome lun, 13 de may, 10:10

Launch Instance wizard | E x +

https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard:

aws Servicios Grupos de recursos

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 1: Choose an Amazon Machine Image (AMI) Cancel and Exit

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. You can select an AMI provided by AWS, our user community, or the AWS Marketplace; or you can select one of your own AMIs.

Search for an AMI by entering a search term e.g. "Windows"

Quick Start 1 to 38 of 38 AMIs

My AMIs

AWS Marketplace

Community AMIs

☐ Free tier only ⓘ

Amazon Linux
Free tier eligible

Amazon Linux 2 AMI (HVM), SSD Volume Type - ami-0de53d8956e8dcf80 (64-bit x86) / ami-06b382aba6c5a4f2c (64-bit Arm) Select

Amazon Linux 2 comes with five years support. It provides Linux kernel 4.14 tuned for optimal performance on Amazon EC2, systemd 219, GCC 7.3, Glibc 2.26, Binutils 2.29.1, and the latest software packages through extras.

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Amazon Linux
Free tier eligible

Amazon Linux AMI 2018.03.0 (HVM), SSD Volume Type - ami-0080e4c5bc078760e Select

The Amazon Linux AMI is an EBS-backed, AWS-supported image. The default image includes AWS command line tools, Python, Ruby, Perl, and Java. The repositories include Docker, PHP, MySQL, PostgreSQL, and other packages.

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Red Hat Enterprise Linux 8 (HVM), SSD Volume Type - ami-098bb5d92c8886ca1 (64-bit x86) / ami-07bd28c96286169fa (64-bit Arm) Select

Comentarios Español

© 2008 - 2019, Amazon Web Services, Inc. o sus empresas afiliadas. Todos los derechos reservados. Política de privacidad Términos de uso

Figura: Selección de sistema operativo.

Creación de máquinas virtuales en AWS

The screenshot shows the AWS Management Console interface for the 'Launch Instance Wizard'. The browser is Google Chrome, and the URL is <https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard>. The page is titled 'Step 3: Configure Instance Details' and includes a sub-header: 'Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.'

The configuration steps are listed at the top: 1. Choose AMI, 2. Choose Instance Type, 3. Configure Instance (active), 4. Add Storage, 5. Add Tags, 6. Configure Security Group, 7. Review.

The configuration fields are as follows:

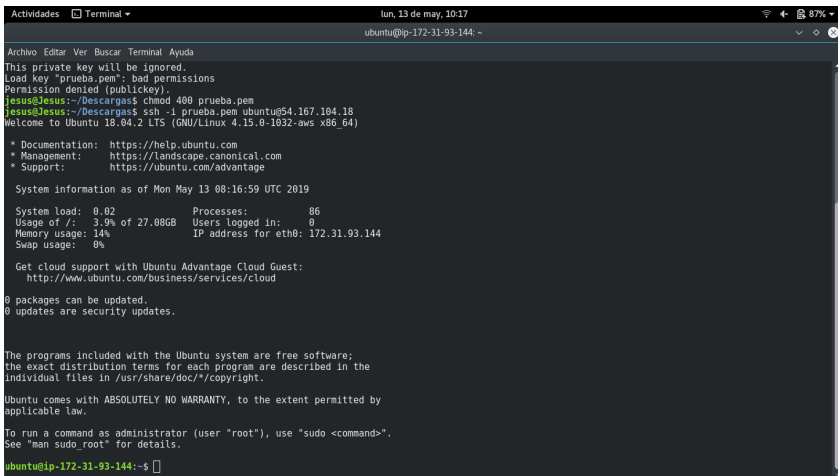
- Number of instances:** 1 (with a link to 'Launch into Auto Scaling Group').
- Purchasing option:** ☐ Request Spot instances.
- Network:** vpc-b9dd55c3 (default) (with a link to 'Create new VPC').
- Subnet:** No preference (default subnet in any Availability Zone) (with a link to 'Create new subnet').
- Auto-assign Public IP:** Use subnet setting (Enable).
- Placement group:** ☐ Add instance to placement group.
- Capacity Reservation:** Open (with a link to 'Create new Capacity Reservation').
- IAM role:** None (with a link to 'Create new IAM role').
- Shutdown behavior:** Stop.

At the bottom, there are buttons for 'Cancel', 'Previous', 'Review and Launch', and 'Next: Add Storage'.

The footer of the console shows 'Comentarios', 'Español', and copyright information: '© 2008 - 2019, Amazon Web Services, Inc. o sus empresas afiliadas. Todos los derechos reservados. Política de privacidad Términos de uso'.

Figura: Configurar detalles.

Creación de máquinas virtuales en AWS



```
Actividades Terminal lun, 13 de may, 10:17
ubuntu@ip-172-31-93-144: ~

Archivo Editar Ver Buscar Terminal Ayuda
This private key will be ignored.
Load key "prueba.pem": bad permissions
Permission denied (publickey).
jesus@Jesus:~/Descargas$ chmod 400 prueba.pem
jesus@Jesus:~/Descargas$ ssh -i prueba.pem ubuntu@54.167.104.18
Welcome to Ubuntu 18.04.2 LTS (GNU/Linux 4.15.0-1032-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

System information as of Mon May 13 08:16:59 UTC 2019

System load:  0.02          Processes:      86
Usage of /:   3.9% of 27.08GB Users logged in:  0
Memory usage: 14%          IP address for eth0: 172.31.93.144
Swap usage:   0%

Get cloud support with Ubuntu Advantage Cloud Guest:
http://www.ubuntu.com/business/services/cloud

0 packages can be updated.
0 updates are security updates.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-93-144:~$
```

Figura: Conexión por SSH.

Creación de máquinas virtuales en Azure

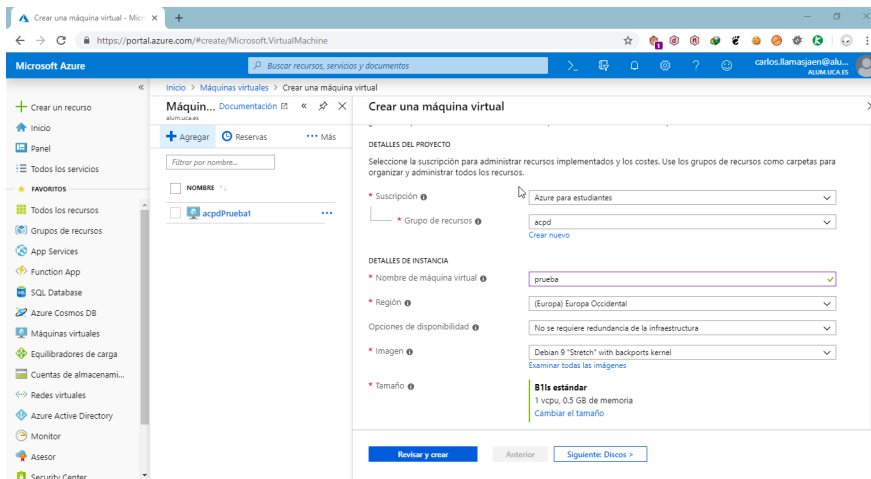


Figura: Selección de sistema operativo.

Creación de máquinas virtuales en Azure

Crear una máquina virtual - Micr... X

https://portal.azure.com/#create/Microsoft.VirtualMachine

Microsoft Azure

Buscar recursos, servicios y documentos

carlos.llamasjaen@alu... ALUM.LUCA.ES

Inicio > Máquinas virtuales > Crear una máquina virtual

Máquin... Documentación

+ Agregar Reservas Más

Filtrar por nombre...

NOMBRE

acpdPrueba1

Crear nuevo

Grupo de seguridad de red de NIC ☐ Ninguno ☒ Básico ☐ Opciones avanzadas

* Puertos de entrada públicos ☐ Ninguno ☒ Permitir los puertos seleccionados

* Seleccionar puertos de entrada SSH

Estos puertos se exponen a Internet. Use los controles avanzados para limitar el tráfico entrante a las direcciones IP conocidas. También puede actualizar las reglas de tráfico entrante más adelante.

Redes aceleradas ☐ Activado ☒ Desactivado

El tamaño de máquina virtual seleccionado no admite redes aceleradas.

EQUILIBRIO DE CARGA

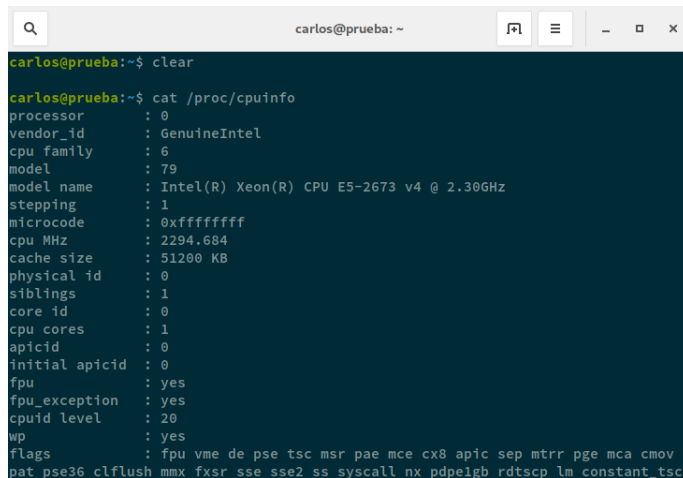
Puede colocar esta máquina virtual en el grupo de back-end de una solución de equilibrio de carga de Azure existente. [Más información](#)

¿Quiere colocar esta máquina virtual como subyacente respecto a una solución de equilibrio de carga existente? ☐ Sí ☒ No

Revisar y crear Anterior Siguiente: Administración >

Figura: Selección como equilibrio de carga.

Creación de máquinas virtuales en Azure

A terminal window titled 'carlos@prueba: ~' with standard window controls. The user has entered 'clear' and then 'cat /proc/cpuinfo'. The output displays detailed CPU specifications for an Intel Xeon E5-2673 v4 processor, including model, name, frequency, cache size, and various flags.

```
carlos@prueba:~$ clear

carlos@prueba:~$ cat /proc/cpuinfo
processor       : 0
vendor_id      : GenuineIntel
cpu family     : 6
model          : 79
model name     : Intel(R) Xeon(R) CPU E5-2673 v4 @ 2.30GHz
stepping       : 1
microcode      : 0xffffffff
cpu MHz        : 2294.684
cache size     : 51200 KB
physical id    : 0
siblings       : 1
core id        : 0
cpu cores      : 1
apicid         : 0
initial apicid : 0
fpu            : yes
fpu_exception  : yes
cpuid level    : 20
wp             : yes
flags          : fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov
pat pse36 clflush mmx fxsr sse sse2 ss syscall nx pdpe1gb rdtscp lm constant_tsc
```

Figura: Conexión por SSH.

Web Services

What are web services?

- Piece of software that makes itself available over the internet.
- Uses a standardized XML messaging system.
- Are not tied to any OS, so they work independently and concurrently.
- Are built on top of open standards such as TCP/IP, HTTP, Java, HTML, and XML.

Components

- SOAP (Simple Object Protocol).
- UDDI (Universal Description, Discovery and Integration).
- WSDL (Web Services Description Language).

Creación de webs en AWS

Eventos recientes

Mostrar todo

Hora	Tipo	Detalles
21-05-2019 00:28:19 UTC+0200	INFO	Launched environment: PruebaAcpd2-env. However, there were issues during launch. See event log for details.
21-05-2019 00:28:17 UTC+0200	ERROR	Creating EIP. 18.211.211.226 failed. Reason: Resource creation cancelled
21-05-2019 00:28:17 UTC+0200	ERROR	Creating Auto Scaling launch configuration failed Reason: API: autoscaling:CreateLaunchConfiguration User: arn:aws:sts::742345703652:assumed-role/vocstartsoft/user278720=carlos.llamasjaen@alum.uca.es is not authorized to perform: autoscaling:CreateLaunchConfiguration on resource: arn:aws:autoscaling:us-east-1:742345703652:launchConfiguration:*:launchConfigurationName/awseb-e-w7kskpcwp9-stack-AWSEBAutoScalingLaunchConfiguration-1TK47660QA4A
21-05-2019 00:28:17 UTC+0200	ERROR	Stack named 'awseb-e-w7kskpcwp9-stack' aborted operation. Current state: 'CREATE_FAILED' Reason: The following resource(s) failed to create: [AWSEBAutoScalingLaunchConfiguration, AWSEBEIP].
21-05-2019 00:28:01 UTC+0200	INFO	Created security group named: awseb-e-w7kskpcwp9-stack-AWSEBSecurityGroup-1RMU82R0MORUF

Figura: Error en la creación de aplicación web de AWS.

Creación de webs en Azure

The screenshot displays the Azure portal interface. On the left, a navigation pane lists various services: 'Introducción' (highlighted), 'Registro de actividad', 'Control de acceso (IAM)', 'Etiquetas', 'Diagnosticar y solucionar pr...', 'Seguridad', and 'Implementación'. Below 'Implementación' is a link for 'Inicio rápido'. The main content area features a purple banner at the top with a rocket icon and the text: 'Haga clic aquí para acceder a nuestra Guía de inicio rápido para implementar código en una aplicación →'. Below this banner, a table lists application details:

Grupo de recursos	(cambiar) : acpd
Estado	: Running
Ubicación	: Central US
Suscripción	(cambiar) : Azure para estudiantes
Id. de suscripción	: 7f92f1bd-5cf9-437a-9477-bab28d8fb49a
Etiquetas	(cambiar) : Haga clic aquí para agregar etiquetas.

Figura: Centro de aplicaciones web de Azure.

Creación de webs en Azure

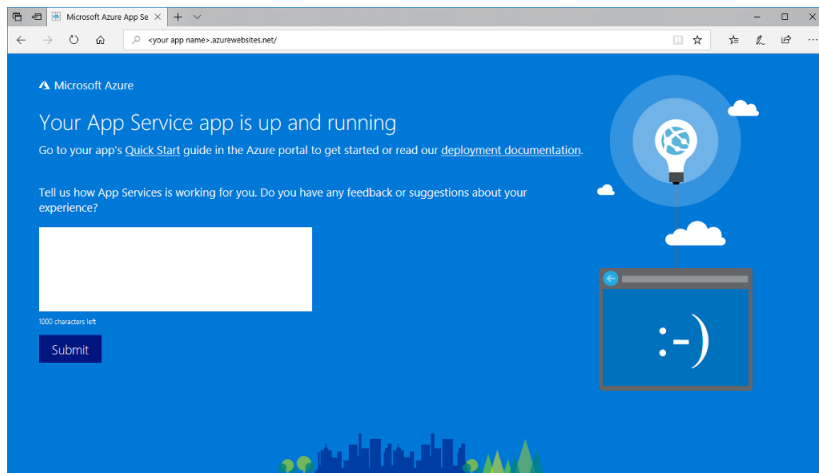


Figura: Ejemplo de web.

Creación de servicios IoT en AWS

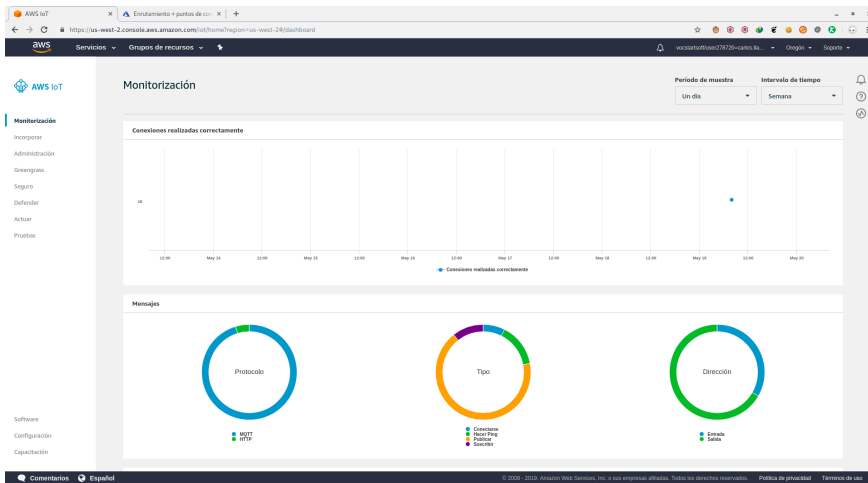


Figura: Centro de control de IoT de AWS.

Creación de servicios IoT en AWS

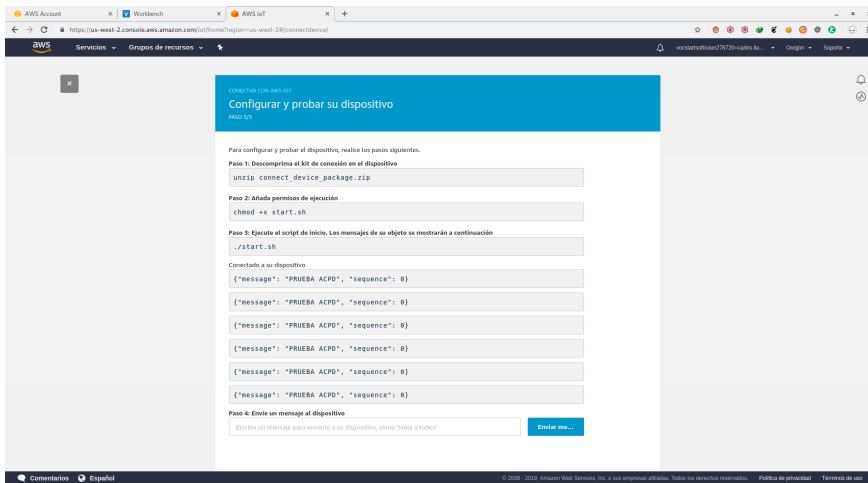


Figura: Dispositivos IoT de AWS.

Creación de servicios IoT en Azure

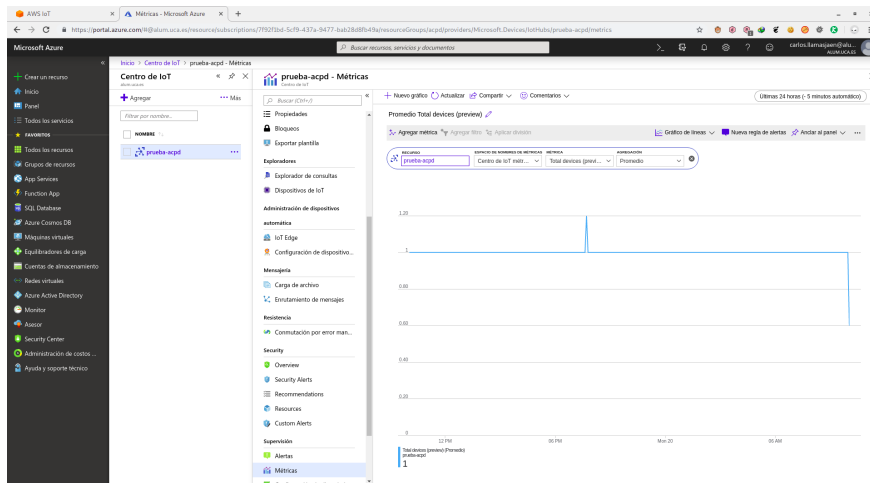
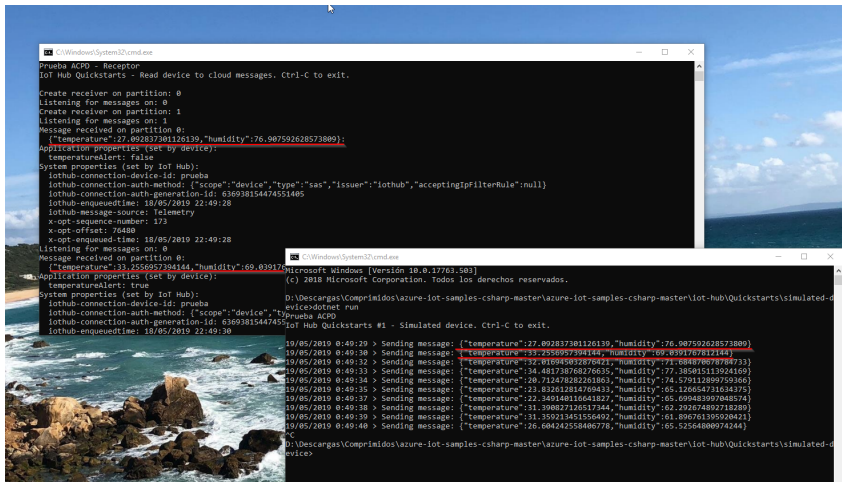


Figura: Centro de control de IoT de Azure.

Creación de servicios IoT en Azure



```
C:\Windows\System32\cmd.exe
Prueba ACPO - Receptor
IoT Hub Quickstarts - Read device to cloud messages. Ctrl-C to exit.

Create receiver on partition: 0
Listening for messages on: 0
Create receiver on partition: 1
Listening for messages on: 1
Message received on partition 0:
{"temperature":27.092837301126139,"humidity":76.907592628573809};
Application properties (set by device):
  temperatureAlert: false
System properties (set by IoT Hub):
  iotHub-connection-device-id: prueba
  iotHub-connection-auth-method: {"scope":"device","type":"sas","issuer":"iothub","acceptingIpFilterRule":null}
  iotHub-connection-auth-generation-id: 636938154474551405
  iotHub-enqueuedtime: 18/05/2019 22:49:28
  iotHub-message-source: Telemetry
  x-opt-sequence-number: 173
  x-opt-offset: 76480
  x-opt-enqueued-time: 18/05/2019 22:49:28
Listening for messages on: 0
Message received on partition 0:
{"temperature":33.2556957394144,"humidity":69.0391767812144};
Application properties (set by device):
  temperatureAlert: true
System properties (set by IoT Hub):
  iotHub-connection-device-id: prueba
  iotHub-connection-auth-method: {"scope":"device","type":"sas","issuer":"iothub","acceptingIpFilterRule":null}
  iotHub-connection-auth-generation-id: 636938154474551405
  iotHub-enqueuedtime: 18/05/2019 22:49:30

C:\Windows\System32\cmd.exe
Microsoft Windows [Versión 10.0.17763.503]
(c) 2018 Microsoft Corporation. Todos los derechos reservados.

D:\Descargas\Comprimidos\azure-iot-samples-csharp-master\azure-iot-samples-csharp-master\iot-hub\Quickstarts\simulated-device>dotnet run
IoT Hub Quickstarts #1 - Simulated device. Ctrl-C to exit.

19/05/2019 0:49:20 > Sending message: {"temperature":27.092837301126139,"humidity":76.907592628573809}
19/05/2019 0:49:30 > Sending message: {"temperature":33.2556957394144,"humidity":69.0391767812144}
19/05/2019 0:49:32 > Sending message: {"temperature":32.016945032876821,"humidity":71.684876678784733}
19/05/2019 0:49:33 > Sending message: {"temperature":34.481738768276635,"humidity":77.385015113924169}
19/05/2019 0:49:34 > Sending message: {"temperature":20.712478282261863,"humidity":74.579112899759366}
19/05/2019 0:49:35 > Sending message: {"temperature":23.832612814769433,"humidity":65.126654731634375}
19/05/2019 0:49:37 > Sending message: {"temperature":22.349148116641827,"humidity":65.699483997948574}
19/05/2019 0:49:38 > Sending message: {"temperature":31.390827126517344,"humidity":62.29247480977182809}
19/05/2019 0:49:39 > Sending message: {"temperature":31.359213451556492,"humidity":61.896761395920421}
19/05/2019 0:49:40 > Sending message: {"temperature":26.604242558406778,"humidity":65.52564806974244}
^C
D:\Descargas\Comprimidos\azure-iot-samples-csharp-master\azure-iot-samples-csharp-master\iot-hub\Quickstarts\simulated-device>
```

Figura: Dispositivo de IoT de Azure.