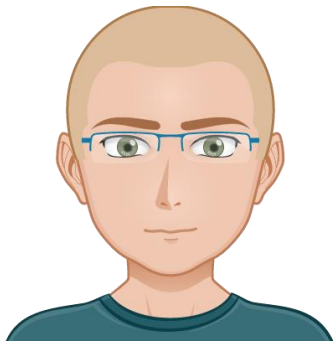




XX Edizione - 22-25 Giugno 2021

# Azure Cognitive Services in Delphi

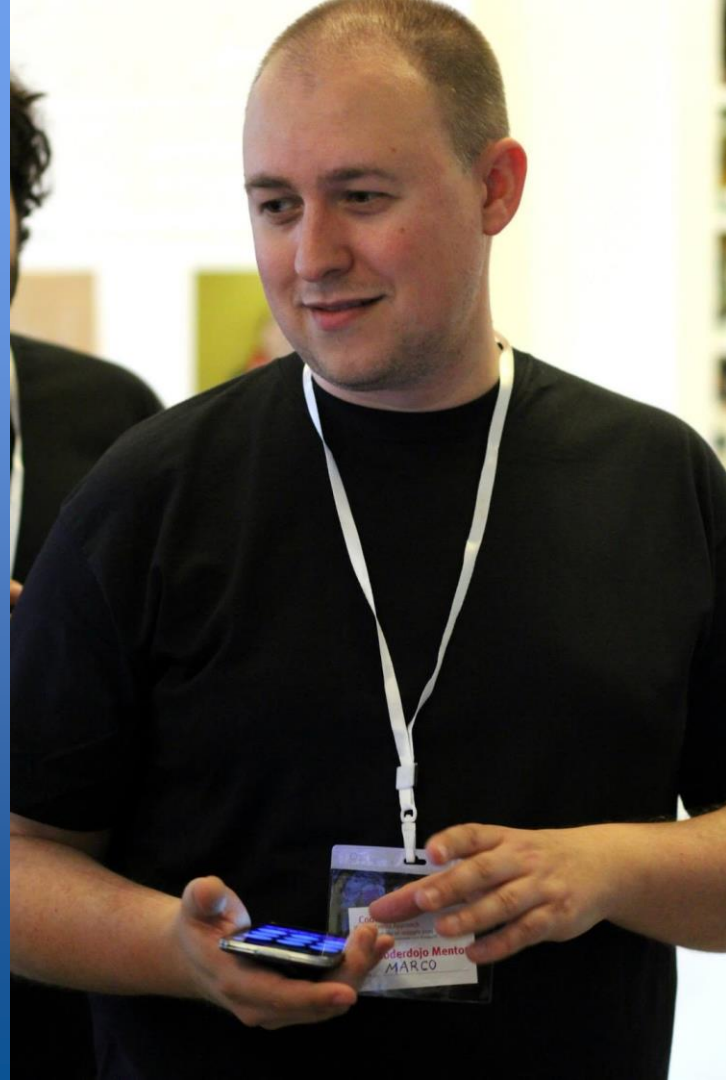
Marco Breveglieri



# MARCO BREVEGLIERI

ABLS Team snc

SOFTWARE AND WEB  
DEVELOPER, TRAINER  
AND CONSULTANT



# SITI e social



## CompilaQuindiVa



<https://www.breveglieri.it>



<https://www.twitch.tv/compilaquindiva>



<https://bit.ly/yt-compilaquindiva>



<https://www.compilaquindiva.com/>



<https://www.delhipodcast.com/>



<https://www.linkedin.com/in/marcobreveglieri/>



<https://twitter.com/mbreveglieri>



<https://github.com/marcobreveglieri>



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begin

# AI is here!

## Artificial Intelligence

### Machine Learning

NLP



Robotics



Autonomous  
Vehicles



Vision



# Machine Learning?



# Come si implementa



# Hai le conoscenze?

$$1 + 1 = 3$$

$$2 + 2 = 5$$





# Not so easy...



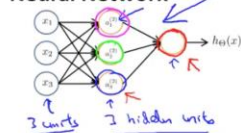
TensorFlow

```
model = keras.Sequential([
    keras.layers.Reshape(target_shape=(28 * 28,), input_shape=(28, 28)),
    keras.layers.Dense(units=256, activation='relu'),
    keras.layers.Dense(units=192, activation='relu'),
    keras.layers.Dense(units=128, activation='relu'),
    keras.layers.Dense(units=10, activation='softmax')
])
```

```
model.compile(optimizer='adam',
              loss=tf.losses.CategoricalCrossentropy(from_logits=True),
              metrics=['accuracy'])
```

```
history = model.fit(
    train_dataset.repeat(),
    epochs=10,
    steps_per_epoch=500,
    validation_data=val_dataset.repeat(),
    validation_steps=2
)
```

## Neural Network



$a_i^{(j)}$  = "activation" of unit  $i$  in layer  $j$

$\Theta^{(j)}$  = matrix of weights controlling function mapping from layer  $j$  to layer  $j+1$

$\Theta^{(1)} \in \mathbb{R}^{2 \times 4}$

$$a_1^{(2)} = g(\Theta_{10}^{(1)} x_0 + \Theta_{11}^{(1)} x_1 + \Theta_{12}^{(1)} x_2 + \Theta_{13}^{(1)} x_3)$$

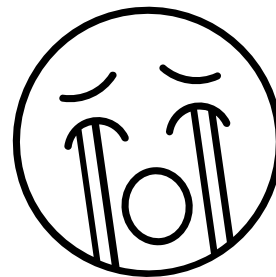
$$a_2^{(2)} = g(\Theta_{20}^{(1)} x_0 + \Theta_{21}^{(1)} x_1 + \Theta_{22}^{(1)} x_2 + \Theta_{23}^{(1)} x_3)$$

$$a_3^{(2)} = g(\Theta_{30}^{(1)} x_0 + \Theta_{31}^{(1)} x_1 + \Theta_{32}^{(1)} x_2 + \Theta_{33}^{(1)} x_3)$$

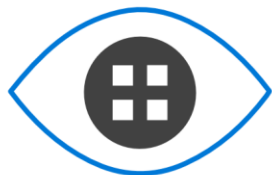
$$h_{\Theta}(x) = a_1^{(3)} = g(\Theta_{10}^{(2)} a_0^{(2)} + \Theta_{11}^{(2)} a_1^{(2)} + \Theta_{12}^{(2)} a_2^{(2)} + \Theta_{13}^{(2)} a_3^{(2)})$$

→ If network has  $s_j$  units in layer  $j$ ,  $s_{j+1}$  units in layer  $j+1$ , then  $\Theta^{(j)}$  will be of dimension  $s_{j+1} \times (s_j + 1)$ .

Andrew Ng



# Una possibile soluzione



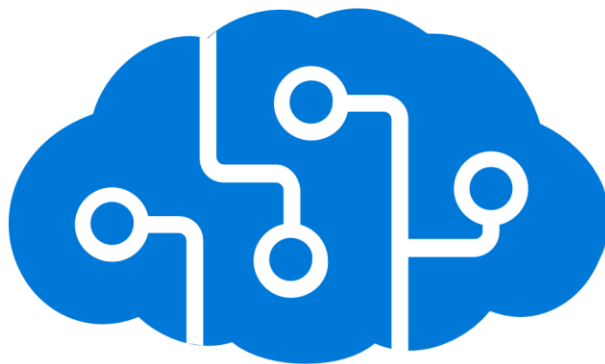
Vision



Speech



Language



**Microsoft Azure  
Cognitive Services**



Knowledge

# AGENDA

- Breve introduzione a Microsoft Azure
- Creare un account per utilizzare Azure
- Impostare le risorse dei Cognitive Services
- Panoramica dei servizi esposti dalla piattaforma
- Esempi di invocazione API usando Delphi

**Microsoft Azure**

# Cloud Computing

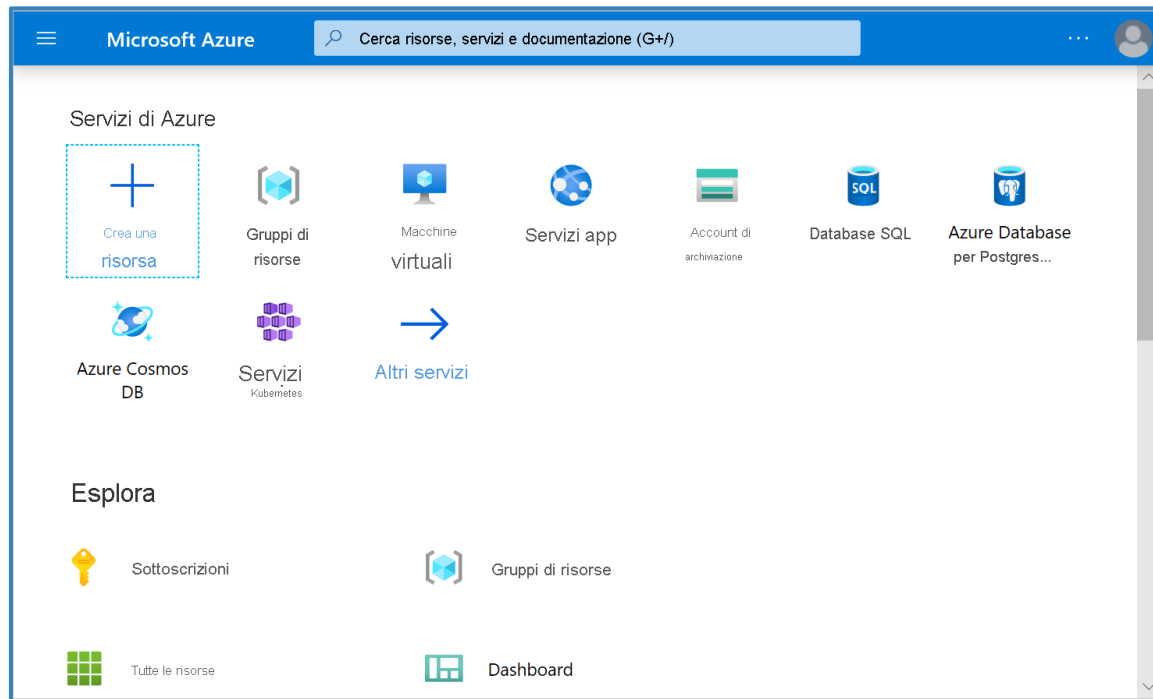
- Distribuzione di servizi informatici su Internet (Cloud)
- Vanta innovazione più rapida e risorse flessibili
- Consente di fare economie di scala
  - Si abbassano i costi operativi
  - L'infrastruttura è gestita in modo più efficiente
  - Le risorse sono dimensionate in base alle esigenze
- Logica a consumo: si noleggia banda, potenza di calcolo, spazio di archiviazione, fatturato per l'uso effettivo, restituito al sistema a fine impiego

# Microsoft Azure

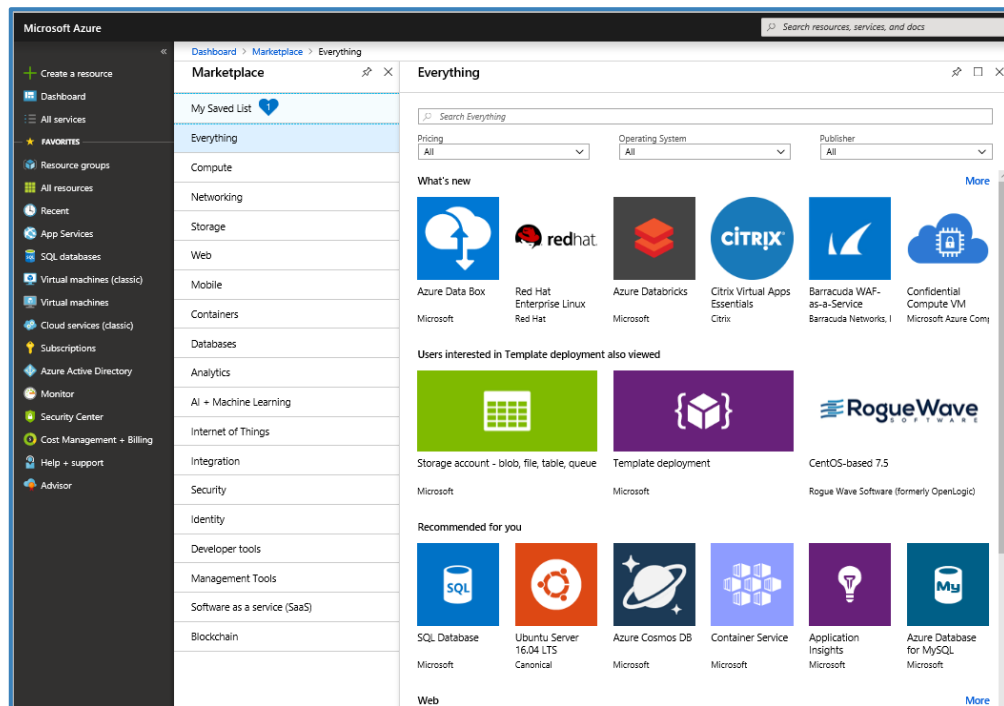


- Piattaforma di Cloud Computing di Redmond
- Comprende un set di servizi in continua espansione (più di 100!)
  - Servizi di esecuzione per applicazioni Web
  - Machine virtuali, container, funzioni serverless
  - Soluzioni di storage (archiviazione remota, hosting di database)
  - Gestione centralizzata degli account
  - Nuove tecnologie: AI, Machine Learning e IoT

# Azure Portal

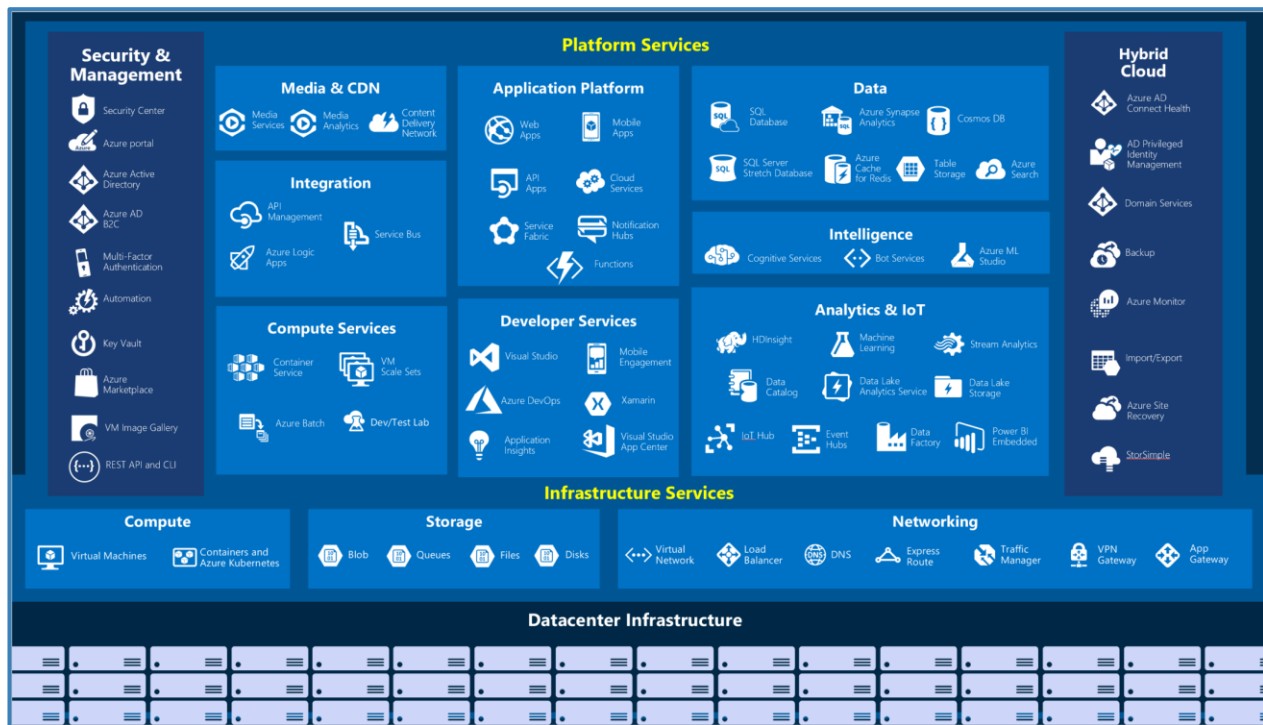


# Azure Marketplace





# Azure Services



# Azure Services

Dispositivi mobili

Internet delle Cose

Big Data

AI

Web

Machine Learning

Networking

DevOps

Database

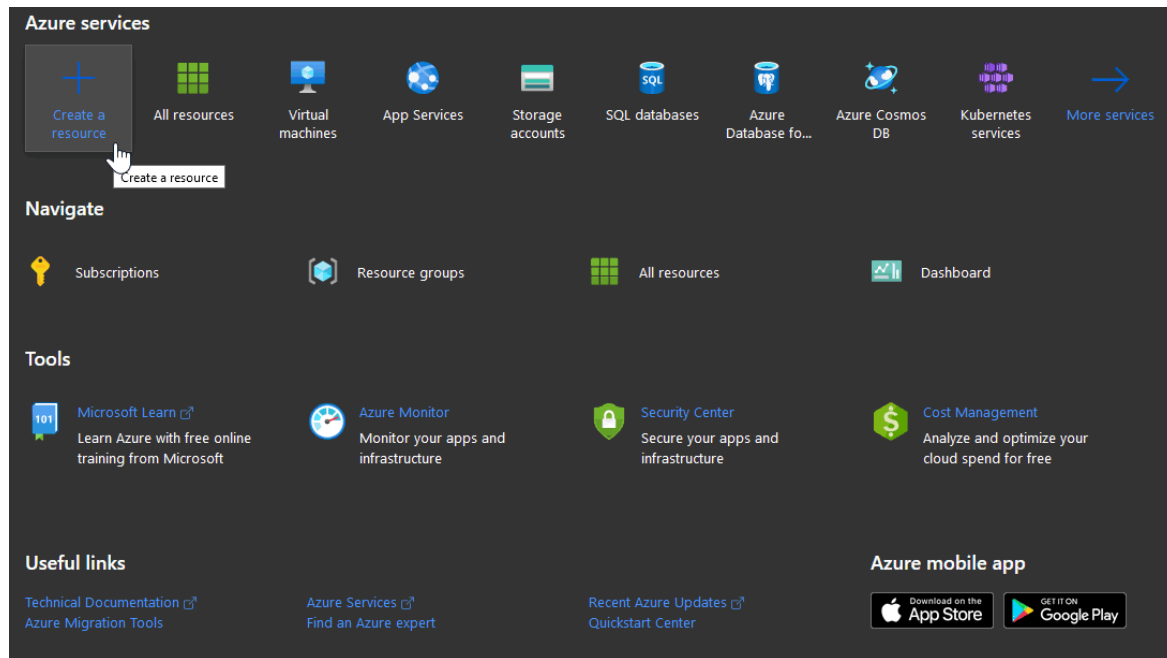
Storage

# Cognitive Services

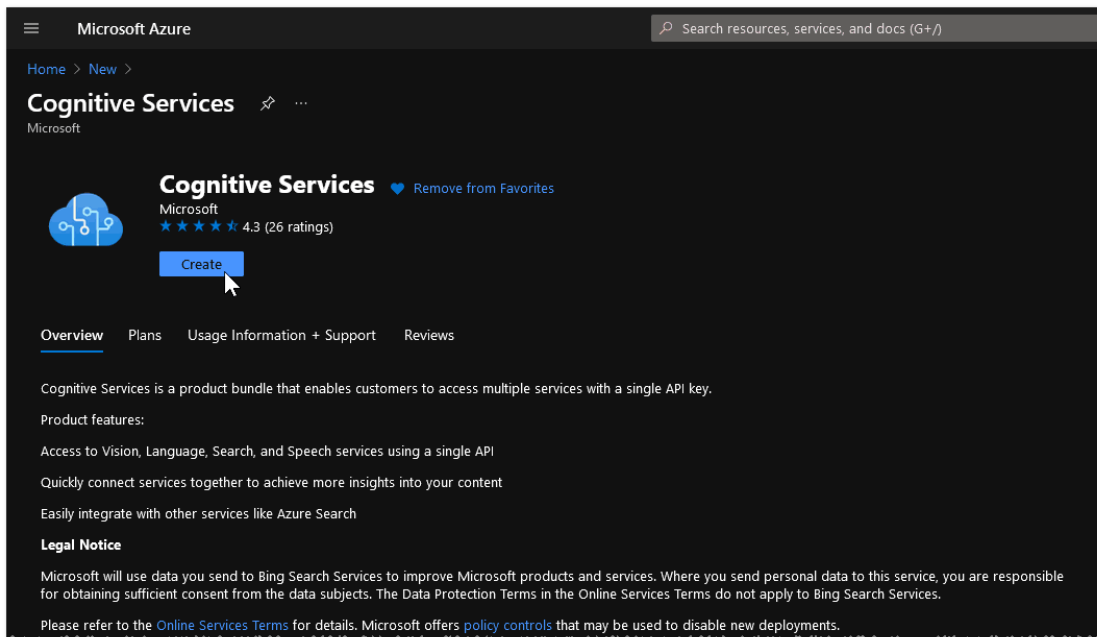
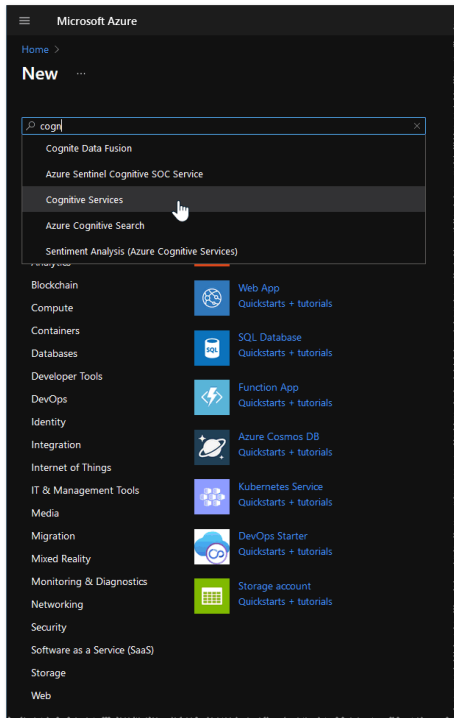
# Creare un account

- Occorre creare un account Azure per usare i servizi
  - E' possibile creare un account gratuito di prova
- Caratteristiche dell'account gratuito
  - Accesso a prodotti e servizi per 12 mesi
  - Credito iniziale da spendere nei primi 30 giorni
  - Accesso a servizi (più di 25!) sempre gratuiti

# Creare la risorsa /1



# Creare la risorsa /2



# Configurare i servizi

Microsoft Azure

Home > New > Cognitive Services >

## Create Cognitive Services

Basics Tags Review + create

Get access to Vision, Language, Search, and Speech Cognitive Services with a single API key. Quickly connect services together to achieve more insights into your content and easily integrate with other services like Azure Search. [Learn more](#)

**Project details**

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription \* ⓘ 1 Pagamento in base al consumo

Resource group \* ⓘ 2 create new

**Instance details**

Region \* ⓘ 3 East US

**Location specifies the region only for included regional services. This does not specify a region for included non-regional services. Click here for more details.**

Name \* ⓘ 4

Pricing tier \* ⓘ 5

[View full pricing details](#)

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[Review + create](#) [Previous](#) [Next: Tags >](#)

Microsoft Azure

Home > New > Cognitive Services >

## Create Cognitive Services

Basics Tags **Review + create**

✓ Validation Passed

**TERMS**

By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; (b) authorize Microsoft to bill my current payment method for the fees associated with the offering(s), with the same billing frequency as my Azure subscription; and (c) agree that Microsoft may share my contact, usage and transactional information with the provider(s) of the offering(s) for support, billing and other transactional activities. Microsoft does not provide rights for third-party offerings. See the [Azure Marketplace Terms](#) for additional details.

**Basics**

Subscription	Pagamento in base al consumo
Resource group	Test
Region	East US
Name	test-cognitive-delphi
Pricing tier	Standard S0

# Guida e documentazione

You are all set! Follow the steps below to use your Cognitive Service resource

Use the same key and endpoint in any of the services listed below

- 1** Grab your keys and endpoint  
Every call to Cognitive Services requires the subscription key above. This key needs to be either passed through
- 2** Get an overview of what you can do with the Cognitive Services  
**Documentation** - Access Quickstarts with code samples, in-depth tutorials and how-to guides  
**Courses** - Explore the free Cognitive Services courses in Microsoft Learn  
**Community** - Ask and answer questions within a community of developers using the Cognitive Services
- 3** Get Started with the Cognitive Services  
Cognitive Services available to use with your key and endpoint.  
**Computer Vision** - Analyze images  
**Content Moderator** - Check text, image or videos for offensive or undesirable content  
**Face** - Recognize people and their attributes in an image  
**Form Recognizer** - Identify and extract text, key/value pairs and table data from form documents  
**Personalizer** - Create rich, personalized experiences for every user of your app.  
**Language Understanding** - Extract meaning from natural language  
**Speech** - Transform speech-to-text, text-to-speech and recognize speakers  
**Text Analytics** - Detect sentiment, key phrases, entities and human language type in text  
**Translator** - Translate text in near real-time  
**Video Indexer** - Analyze video and audio

Microsoft | Docs | Documentazione | Learn | Q&A | Esempi di codice

Azure | Documentazione del prodotto | Architettura | Impara a usare Azure | Sviluppo | Risorse

Azure | Servizi cognitivi | Text Analytics

Portale | Account gratuito

Segnalibro | Condivisione

È possibile che parte di questo argomento sia stato tradotto automaticamente.

## Documentazione dell'API Analisi del testo

L'API Analisi del testo è un servizio basato sul cloud che fornisce elaborazione avanzata in linguaggio naturale su testo non elaborato e include quattro funzioni principali: analisi del sentiment, estrazione di frasi chiave, riconoscimento di entità denominate e rilevamento della lingua.

- Informazioni sull'API Analisi del testo**
  - Informazioni sull'API Analisi del testo
  - Esempi di scenari utente
  - Novità
  - Uso responsabile dell'intelligenza artificiale
  - Anzi rapidi
  - Usare la libreria client e l'API REST
  - Esercitazioni
  - Concetti
  - Guide pratiche
  - Informazioni di riferimento
  - Risorse
- Analisi del sentiment**
  - AVVIO RAPIDO
  - Uso di C#
  - Uso di Python
  - Uso di Node.js
  - Uso di Go
  - Uso di Ruby
  - ESERCIZIONE
  - Integrare Power BI per analizzare il sentiment dei clienti
  - Usare Flask per tradurre testo, analizzare sentiment e sintetizzare la voce
  - GUIDA PRATICA
  - Analisi del sentiment
- Rilevamento della lingua**
  - AVVIO RAPIDO
  - Uso di C#
  - Uso di Python
  - Uso di Node.js
  - Uso di Go
  - Uso di Ruby
  - ESERCIZIONE
  - GUIDA PRATICA
  - Rilevamento della lingua
- Uso responsabile dell'intelligenza artificiale**
  - AVVIO RAPIDO
  - Uso di C#
  - Uso di Python
  - Uso di Node.js
- Estrazione di frasi chiave**
  - AVVIO RAPIDO
  - Uso di C#
  - Uso di Python
  - Uso di Node.js
- Riconoscimento delle entità**
  - AVVIO RAPIDO
  - Uso di C#
  - Uso di Python
  - Uso di Node.js

Scarica il PDF



# Panoramica dei servizi



# Integrazione con Delphi

# Cloud API

## Data.Cloud.AzureAPI

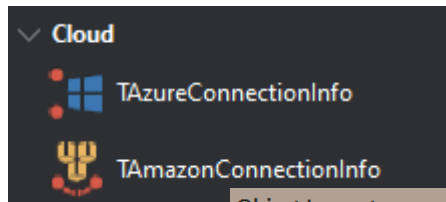
Up to Parent: Data.Cloud

Contains classes that implement the API for using Microsoft Azure services.

Package: CloudService270.bpl

### Classes

ISignedIdentifier	
TAzureAuthentication	Azure-specific implementation of TCloudSHA256Authentication.
TAzureBlob	Blob of any supported type, with its common features.
TAzureBlobService	Manager class for the Microsoft Azure Blob Service account.
TAzureConnectionInfo	Azure extension of TCloudConnectionInfo.
TAzureContainer	Represents a container for the Microsoft Azure Blob Service.
TAzureQueueService	Manager class for a Microsoft Azure Table Service account.
TAzureService	Abstract extension of the TCloudService class.
TAzureTableService	Implementation of TAzureService.
TBlobPolicy	Represents an access policy for a blob container.
TPolicy	Base class for classes that represent an access policy.
TQueuePolicy	Represents an access policy for a queue.
TSignedIdentifier	Represents an <a href="#">access policy</a> and the <a href="#">signed identifier</a> that uniquely identifies that policy.
TablePolicy	Represents an access policy for a table.



## Object Inspector

AzureConnectionInfo1 TAzureConnectionInfo

### Properties

AccountKey	
AccountName	
BlobEndpoint	.blob.core.windows.net
LiveBindings Designer	LiveBindings Designer
Name	AzureConnectionInfo1
Protocol	http
QueueEndpoint	.queue.core.windows.net
RequestProxyHost	
RequestProxyPort	0
TableEndpoint	.table.core.windows.net
Tag	0
UseDefaultEndpoints	<input checked="" type="checkbox"/> True
UseDevelopmentStorage	<input type="checkbox"/> False

# Demos!



end.



**THANK YOU**