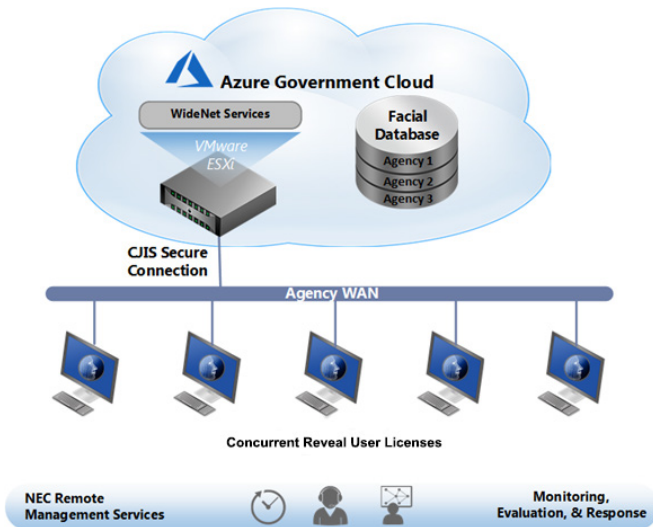


## Advanced Criminal Investigative Service Using Face Recognition Technology

# NeoFace® WideNet

### At a Glance

- Facial Recognition Technology as a Service for Law Enforcement
- Modern user interface utilizing any web browser to operate
- Support to process multiple image file & video clip formats
- Powerful case, imaging and review tools for the user
- Highly scalable for small, medium and large agency & users
- Easy integration into existing agency's systems and operations
- Shared database to investigate and solve more criminal cases
- Powered by NEC's NeoFace Facial Recognition Algorithm – the industry's most accurate and fastest matching algorithm!



### Overview

The amount of mugshot data law enforcement agencies process from real-time videos, online digital media and hardcopy photographs is growing at a rapid rate. Additionally, suspects cannot always be relied upon to provide their true identities, taxing stretched resources even further. Leveraging face recognition technology to automatically search, process, and match facial images can unlock the information held in large digital mugshot databases to expedite criminal investigations and solve more crimes.

NEC's NeoFace WideNet hosted service, available and accessed from a web browser, provides law enforcement and crime laboratory agencies the ability to enhance poor quality latent face images, search against their mugshot repositories, and locate potential candidates. NeoFace WideNet allows authorities to match facial images against these potential candidates, ranking the database images against the probe image and providing a ranked candidate list. The solution allows operators to easily scroll through and review the candidate list, enabling a quick assessment of results.

Independent testing confirms that NeoFace technology provides the fastest, most accurate matching capability and is the most resistant to variants in ageing, race and pose angle.

### Solution

NEC's NeoFace WideNet hosted service reduces investigation time for cases that contain facial video evidence, thus reducing case load for investigators. Another advantage of NeoFace WideNet is its quick processing of facial evidence coupled with its ability to generate persons of interest list rapidly to benefit the criminal case investigation.

NeoFace WideNet shows an immediate return on investment for customers. It reduces investigation time and investigator workload. Most importantly, the solution helps turn the previously unusable images into hard evidence to solve crimes.

## Turn Poor-Quality Images into Evidence

NeoFace WideNet enables law enforcement agencies to enhance poor quality latent face images for comparison to the shared mugshot databases. This allows system operators to develop watch lists of potential matches while maintaining a full audit trail for each step in the image enhancement process. It also helps investigators identify individuals in crime scene photos and surveillance videos by matching facial images against mugshot repositories. NeoFace WideNet also provides a set of verification tools that helps the operator to compare the search probe against potential candidates, allowing investigators to quickly investigate and solve a crime after it has been committed.

## Easy Web Interface with Advanced User Tools

NeoFace WideNet can be used by authorized agency users per the licensing agreement. Operators use any HTML 5 compatible web browser such as Microsoft® Internet Explorer or newer Edge, Google Chrome™, and Mozilla Firefox™ to access the NeoFace Reveal application.

Due to poor quality or angle of captured facial images, image enhancement algorithms can improve matching accuracy. NeoFace WideNet provides a comprehensive set of standard and advanced image processing enhancements to improve image quality and matching ability. Standard image enhancements include overall image tools and filters applied to improve detail and remove background noise. Some standard enhancements include crop/rotate, brightness, contrast, intensity, smooth, sharpen, histogram equalization, noise reduction, aspect ratio correction, and de-interlacing.

NeoFace WideNet also delivers several advanced enhancements, allowing correction of difficult to match images:

- **Pose Correction** – Pose correction attempts to generate a frontal face image from an image source that was captured off center. By manually marking specific facial features, a rotated facial image can be calculated, improving the facial matching score.
- **Consolidation** – Consolidation attempts to create a properly posed frontal face image from a series of images. By selecting a series of images, a composite facial image can be created, allowing simulation of a frontal face image.
- **Illumination** – Illumination allows for correction of shadows due to off-center light sources. Manual selection of an area of the image will allow simulation of an additional light source.
- **Verification** – Review of a probe against candidate images, a user can use side by side image comparison, overlap, blend, mark and measure, and annotate.

## Support of Multiple Image & Video Formats

NeoFace WideNet can process facial images obtained from either still images or video streams. Still images can be imported through two different methods, depending on source and intended use. The first method is to select a single file from a locally available directory. This uses the standard Windows® file selection dialog. The second method is to batch input all images within a selected directory. Once inputted, NeoFace WideNet displays all images in a pick list from which additional review and processing can be accomplished. For both single file and batch input methods, multiple image file formats are supported, including BMP, TIFF, PGM, PNG, JPEG, and J2K. Any NIST formatted file can also be imported. Once a still image of any type is imported, potential facial data is extracted and quality metrics are displayed, overlaying each image. This quality data determines the best images for further processing and searching.

## Unsurpassed Accuracy, Matching & Scalability

The strength of NEC's NeoFace technology lies in its tolerance of poor quality. Highly compressed surveillance videos and images, previously considered of little or no value, are now usable evidence leading to higher rates of positive identification. With its ability to match low resolution facial images down to 24 pixels between the eyes, NEC's NeoFace technology outperforms all other face recognition systems in matching accuracy. While searching of latent fingerprints at crime scenes is standard, NeoFace facial recognition technology can now positively recognize latent photos with a high degree of accuracy.

NeoFace WideNet is powered by a service oriented architecture that is hosted on the secured Microsoft Azure Government cloud. Users access, logon and use their web browser over a secured connection to access the WideNet database and facial recognition to investigate.

## Innovative Force in Identification

For more than 30 year, NEC has been a world leader in integrated, high availability biometric identification systems. The unparalleled identification matching accuracy and speed of our fingerprint and facial recognition technologies have been independently verified by NIST. NEC globally provides "Solutions for Society" that promote the safety, security, efficiency, and equality of society. Under the company's corporate message of "Orchestrating a brighter world", NEC aims to help solve a wide range of challenging issues and to create a new social value for the changing world of tomorrow.

For more information, please visit [www.nec.com/solutionsforsociety](http://www.nec.com/solutionsforsociety) and [www.necam.com/AdvancedRecognitionSystems](http://www.necam.com/AdvancedRecognitionSystems).

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