# FUJITSU

White paper
FUJITSU Security Solution AuthConductor V2
Taking biometric authentication to the next level

FUJITSU Security Solution AuthConductor uses various authentication methods, including palm vein authentication, to deliver comprehensive biometric authentication for customers.

In addition to providing a unified palm vein authentication office environment, it features face authentication, fingerprint authentication, and Smart card authentication for PC and application logons. This solution is also fully scalable for use from several people to organizations with tens of thousands of users.

With the launch of this solution, Fujitsu enables customers to enjoy unparalleled convenience with secure and flexible solutions for a diverse range of use cases and authentication scenarios.
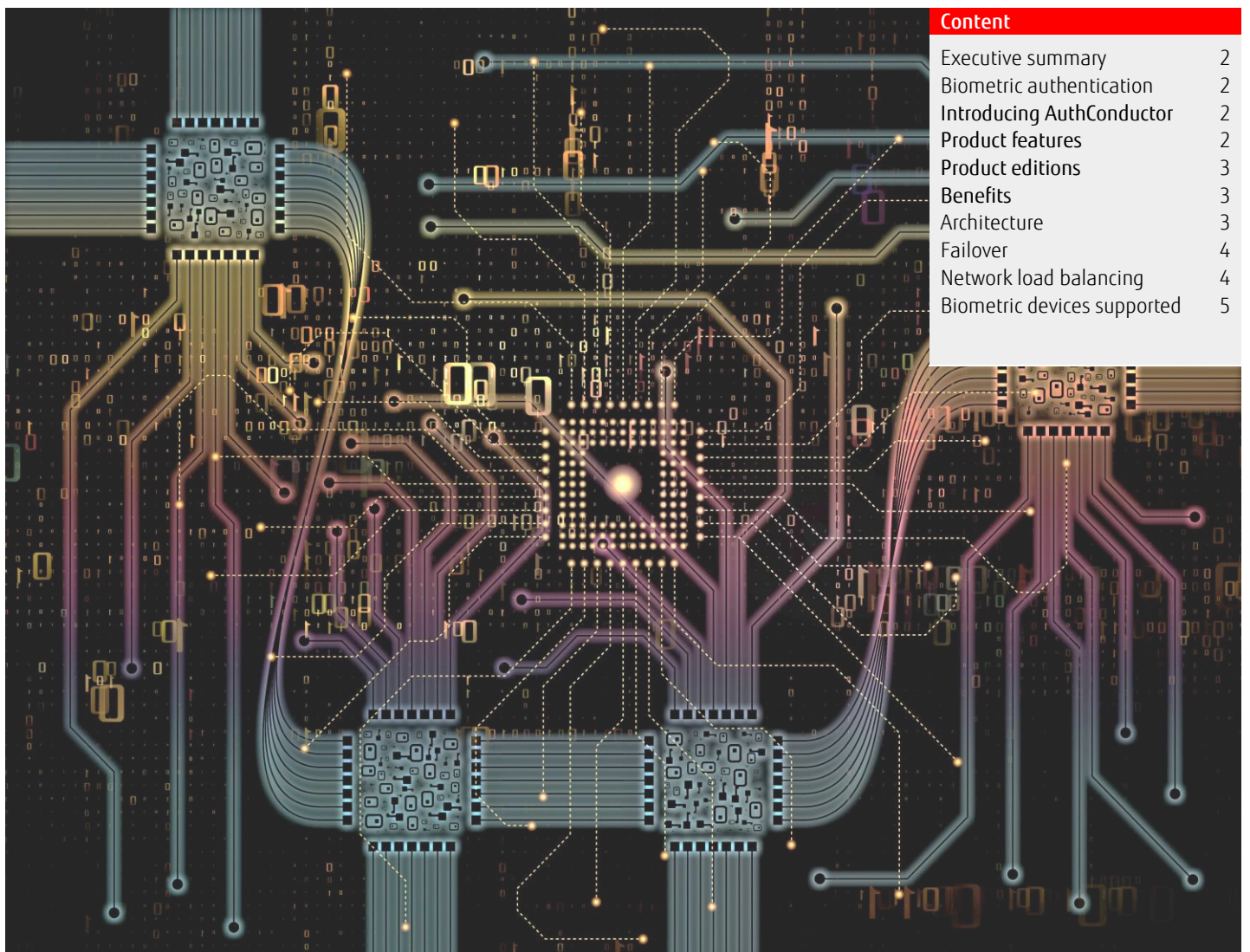
Executive summary

In recent years, the use of biometrics has been expanding. It has traditionally been used in situations requiring strict security such as entering and leaving important facilities.

However, not only is it expanding its applications, such as linking with attendance management, but it is also beginning to be applied to new businesses targeting general users. Fujitsu has been developing and promoting palm vein authentication technology since 2004 and has been incorporating it into PCs, ATM and other products. This paper discusses new ways to utilize biometrics based on over 15 years' experience, both in Japan and around the world.

Biometric authentication

Authentication is a technology for identifying users, with passwords and Smart cards commonly used. However, passwords are memory-dependent, and if you forget or lose your Smart card then you can't use your PC or can't get into your office.

Biometric authentication, which uses your body for authentication, doesn't require you to remember passwords or worry about losing cards.

Biometric authentication includes palm vein, fingerprint, iris (eye), face, voiceprint, and many other authentication methods. Each has its own merits and demerits, so you can improve convenience, operational efficiency, and security by choosing the right method for your application.

Biometric authentication is more expensive up-front, but cost saving will be made over time. If a password is used, the user is required to change the password periodically or to use a complex combination of characters. If the user forgets the password, the password must be reset. Administrators incur operational burdens and costs, such as prompting users to change passwords when they have been using them for a long time without changing them and responding to password reset requests. In the case of a Smart card, the card itself is expensive, and if it is stolen or lost, there is an addition cost of replacing and reissuing it.

Biometric authentication technologies are becoming increasingly visible in daily life, offering businesses and consumers convenience in a variety of areas, ranging from frictionless transactions for cashless shopping and ticketless travel, to access management for membership data and security clearance for sporting events. At the same time, it's anticipated that companies will continue to integrate a variety of biometric authentication methods, including for PC logons and physical access management, to further improve convenience and reduce operational burdens in enterprise settings.

Introducing AuthConductor

To this end, Fujitsu has been offering customers its "AuthConductor Server" software since April 2017, enabling users to add palm vein authentication functionality to their existing business systems.

In addition to providing a unified palm vein authentication office environment, this product features face authentication, fingerprint authentication and Smart card authentication for PC and application logons and is fully scalable from several people to organizations with tens of thousands of users.

Multiple passwords are difficult for employees to remember and troublesome to enter. The process for resetting forgotten passwords can be complicated and unauthorized access may lead to confidential information leakage.

As a solution to these and other issues, Fujitsu has been providing biometric authentication solutions as an alternative to ID and password authentication since 1999 and has developed a variety of supporting sensor technology. We not only address the operation of individual user devices but also provide a consolidated solution for management of user (employee) access by IT administrators and implementation of the access policy for confidential information and systems.

In order to respond to global market needs, Fujitsu AuthConductor has been developed from the ground up with an architecture that reflects all our accumulated know-how and a re-evaluation of usability. AuthConductor continues to offer the strength of its easy "add on" deployment that does not require tinkering with the customer's current system.

Product features

Now, in order to meet the increasingly diverse authentication needs of its customers, Fujitsu has used its experience with previous solutions, such as PalmSecure LOGONDIRECTOR, and added new functions to deliver an authentication solution to meet the unique needs of a variety of customers.
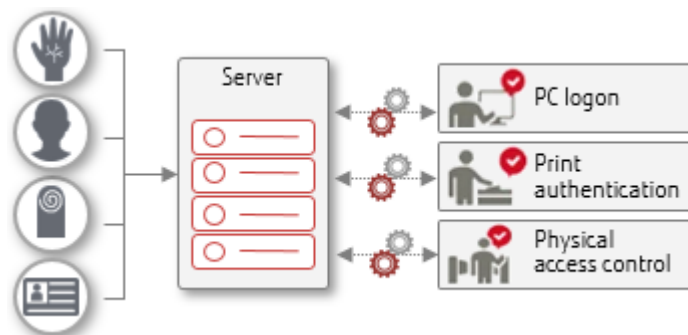
Comprehensive access with users' palm vein data across different platforms and applications, replacing need for different authentication methods

- Unification of in-house authentication methods with palm vein authentication for enterprise users.
  By centralizing palm vein data on the server, upon registration it can be used for authentication for a variety of purposes, including PC logon, physical access management, and printing authentication, eliminating the need for separate registration for each application. This not only enhances system security, but also eases access for users and administrators alike

- Improved authentication performance for consumer-facing services
  when palm vein authentication function is added to customer-facing business systems, the verification time can be sped up to 50% over conventional products. This makes palm vein authentication even more convenient for large-scale service deployments like cashless payments, which are expected to grow in use. The new version offers users exceptional scalability, with support for small, standalone deployments or for organizations with tens of thousands of users.

Expanded authentication functionality for PC logon

- Expanded support for a variety of authentication methods
  In addition to palm vein authentication, the new version offers face authentication using technology developed independently by Fujitsu Laboratories Ltd., as well as fingerprint authentication and Smart card authentication.
- Flexibility and scalability for small to large customers.
  The service can be adjusted depending on the size of the customer and the authentication method they want to use.

Product editions

	Basic Plus	Standard Edition (SE)	Enterprise Edition (EE)	Enterprise Extended Edition (EEE)
Data storage	Client	Server	Server	Server
Number of users	Small	<10,000's	<30,000's	100,000's
Target markets	inB	inB	inB	inB /B2C
Authentication	1: 1	1: 1	1: 1 / 1: N	1: 1 / 1: N
Devices				
Palm vein	✓	✓	✓	✓
Face	✓	✓		
Fingerprint	✓	✓		
Smart card	✓	✓	✓	

Benefits

By deploying this solution/software, customers can immediately begin enjoying the following benefits:

For each PC user (employee)

- Elimination of the need to memorize multiple combinations of IDs and passwords.
- Elimination of the necessity of periodically updating of passwords.

For system administrators and information system departments

- Reduced risk of password leakage since general user awareness of passwords for system operation is not necessary.
- Elimination of tasks required for reset of forgotten passwords.
- Reduced workload due to elimination of periodic password updates.
- Elimination of administrative tasks associated with the management of IDs and passwords for each of the various systems.
- Log acquisition simplifies confirmation of activity by users in the event of an audit and can also serve as an effective measure to detect and deter internal fraud and crime.
- Central consolidated management of user IDs and passwords and swift addition/deletion of user data from the management menu. Termination of temporary access is simple.

Other benefits

- Optimization of the UI (User Interface) enables easy selection of major functions from the Main Screen, and the arrangement of the various setting screens is logical and easy to understand.
- It unifies various in-house authentication procedures with palm vein authentication to simplify processes for enterprise users. By centralizing palm vein data on the server, AuthConductor V2 can be used for various purposes like physical access management, PC logon, and printing authentication. This eliminates the need for separate registration for every single application, increasing security and simplifying access for administrators and users alike.
- The software also provides expansive support for various authentication procedures. Along with the palm vein authentication, this new software provides face authentication through technology developed by Fujitsu.
- Promises flexibility and scalability for every size of customer.

Architecture

Standard and Enterprise editions are built on a client-server architecture. In the Standard Edition, the server side is comprised of AD LDS, while on the Enterprise Edition it is the AuthConductor service running under Microsoft IIS and SQL Server
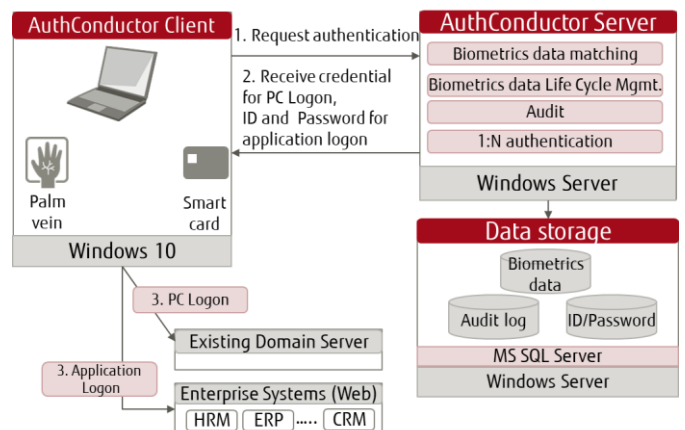
SE architecture

User authentication information such as credentials, biometrics and configurations are stored in AD LDS, which are directly accessed by clients, where biometric authentication takes place.
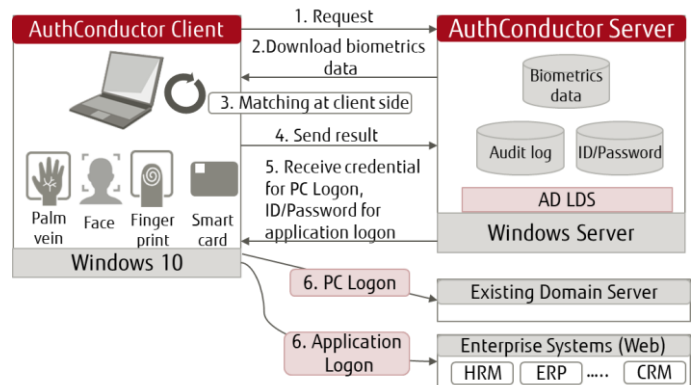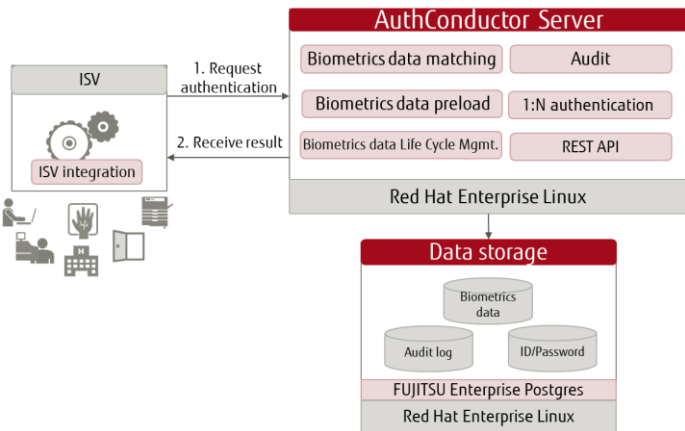

EE architecture

User authentication information is stored in Microsoft SQL Server. The application server performs authentication of palm vein biometrics.

EEE architecture

AuthConductor Enterprise Extended Edition (EEE) enables PalmSecure authentication to be integrated into other solutions.
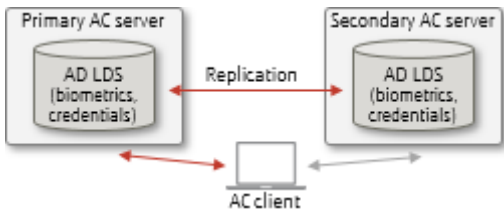

Failover

AuthConductor supports the notion of a primary and secondary servers, with failover to the secondary server when connection to the primary fails.
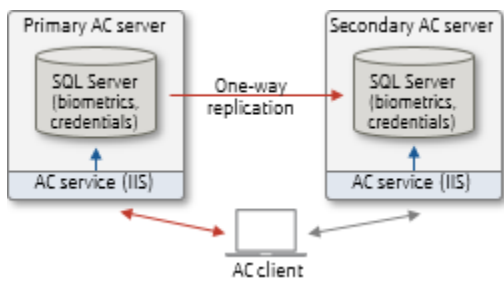
SE failover

The Standard Edition uses AD LDS server in primary and secondary server, with the ability to apply updates in both directions.

EE failover

The Enterprise Edition fails over to the secondary SQL Server if connection to the primary server fails.
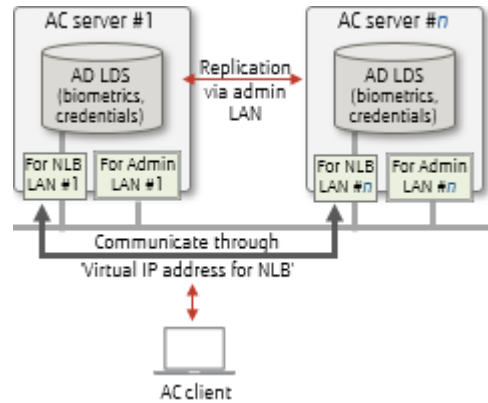

A SQL Server Failover Cluster should be deployed to ensure that updates are not discarded once the primary is online again.

Network load balancing

For larger installations, the server can also be setup using a Network Load Balancer (NLB). The NLB can either be a hardware NLB or it can use the Windows' Network Load Balancing feature.

SE network load balancing

EE network load balancing

The Enterprise Edition applies updates in only one direction, so the AuthConductor services in other servers refer to the primary server.
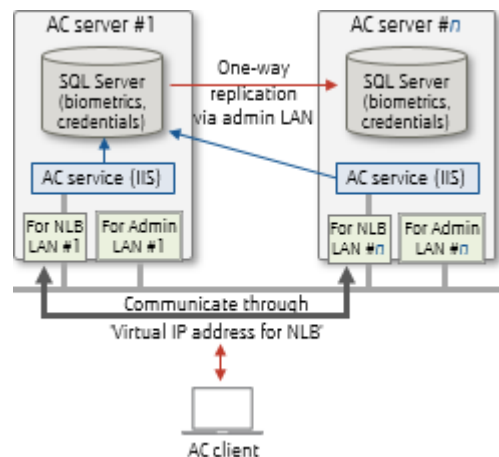
If a SQL Server Failover Cluster is deployed and the primary server fails, then the other servers can refer to a secondary SQL Server instance on the secondary server.

Biometric devices supported

AuthConductor supports the devices below.

Face authentication cameras

- Format: RGB24/YUY2/MJPEG
- Resolution: QVGA (320 x 240) or higher (required)
             VGA (640 x 480) (recommended)
- Standards: UVC-compliant cameras

*Infrared cameras and Windows Hello face authentication cameras are not supported.
*USB 2.0 or USB 3.0 are required for external cameras.

Fingerprint sensors

- Fujitsu laptop built-in sensors
- Fujitsu USB external type: FS-410U

Smart cards

Compatible Smart cards:
- FeliCa cards, TypeB cards (Standard Edition, Enterprise Edition)
- FeliCa cards, MIFARE Classic (Basic Plus)

Compatible Smart card readers/writers:
- FeliCa cards:
  - Fujitsu laptop built-in NFC reader/writer
  - Sony RC-S380/S (Basic Plus, Standard Edition, Enterprise Edition)
  - Sony RC-S380/SW (Basic Plus)
- TypeB cards:
  - Identiv CLOUD 3701 F (non-contact type)
  - Identiv CLOUD 2700 R (contact type)
  - Fujitsu laptop built-in contact reader/writer (contact type)

Palm vein sensors

- PalmSecure F-Pro Standard
- PalmSecure-F-Pro Mouse
- Fujitsu laptop built-in sensor

Contact

Fujitsu Australia Limited
Product Manager Client Computing Devices
Fujitsu Product
ccd@fujitsu.com

2020-11-25 WW EN