



# eCAT

## Self-Service Terminal Multi-Vendor Application Platform



*We Move Faster*

GRGBanking Equipment Co., Ltd.

**1** Open Platform eCAT

**2** Advanced Features

**3** Advantage and Case Study



## Based on software **BUS** technology

- implement new requirements by plugging in add-ins

1

## Easy technology (Visual Studio, .net 2008, C# )

- easy to learn and develop

2

## Provide mature **SDK** for secondary developments

- SDK Documentation
- Code sample template

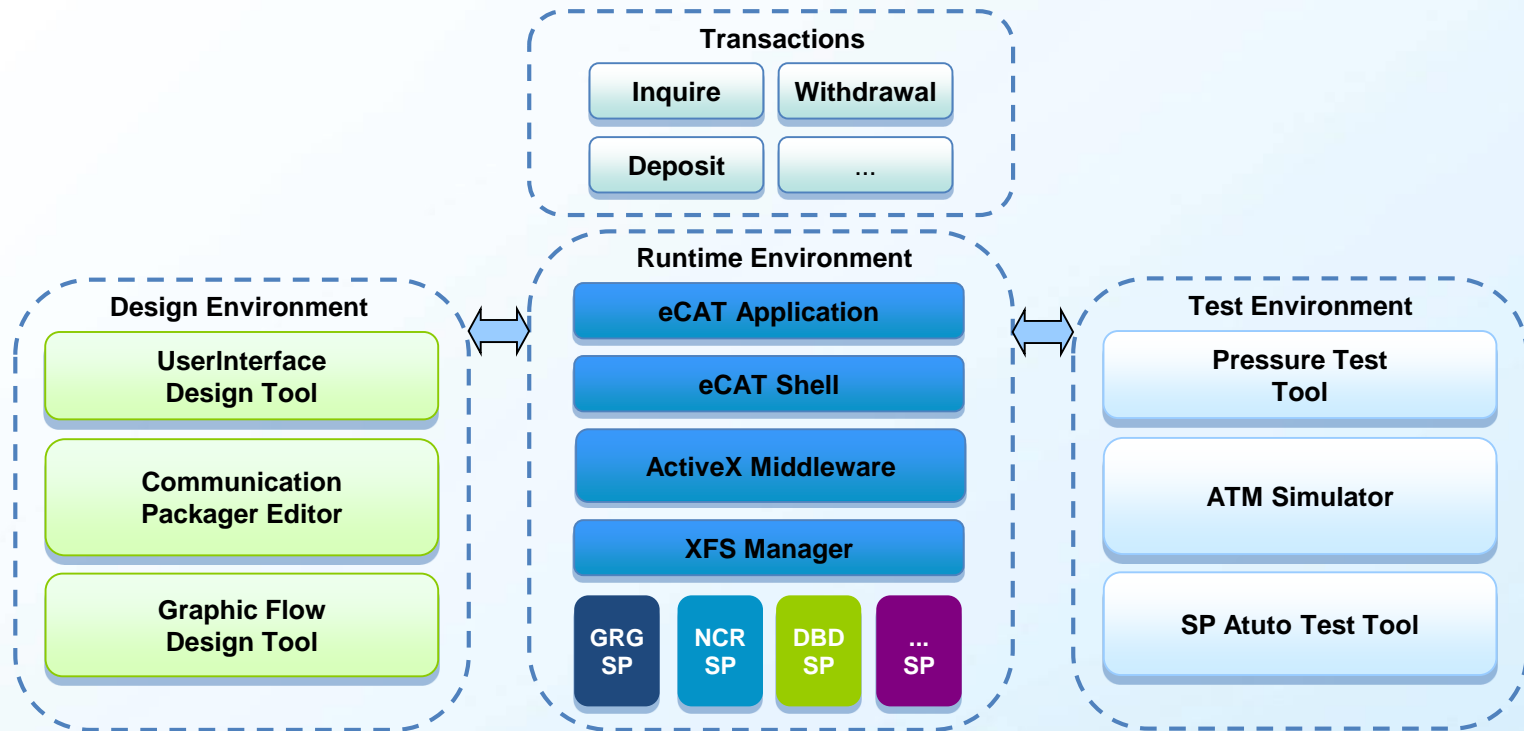
3

## Full-scaled auxiliary tools

- GVE(GRG Visual Expression), integrated with flow designer, package editor, HTML editor, Form designer
- Automatic test platform

4

## Software Architecture



### Fast and Easy Deployment

1. Base on CEN XFS 3.0 or higher
2. Convenient secondary development
3. Web application

### User Friendly

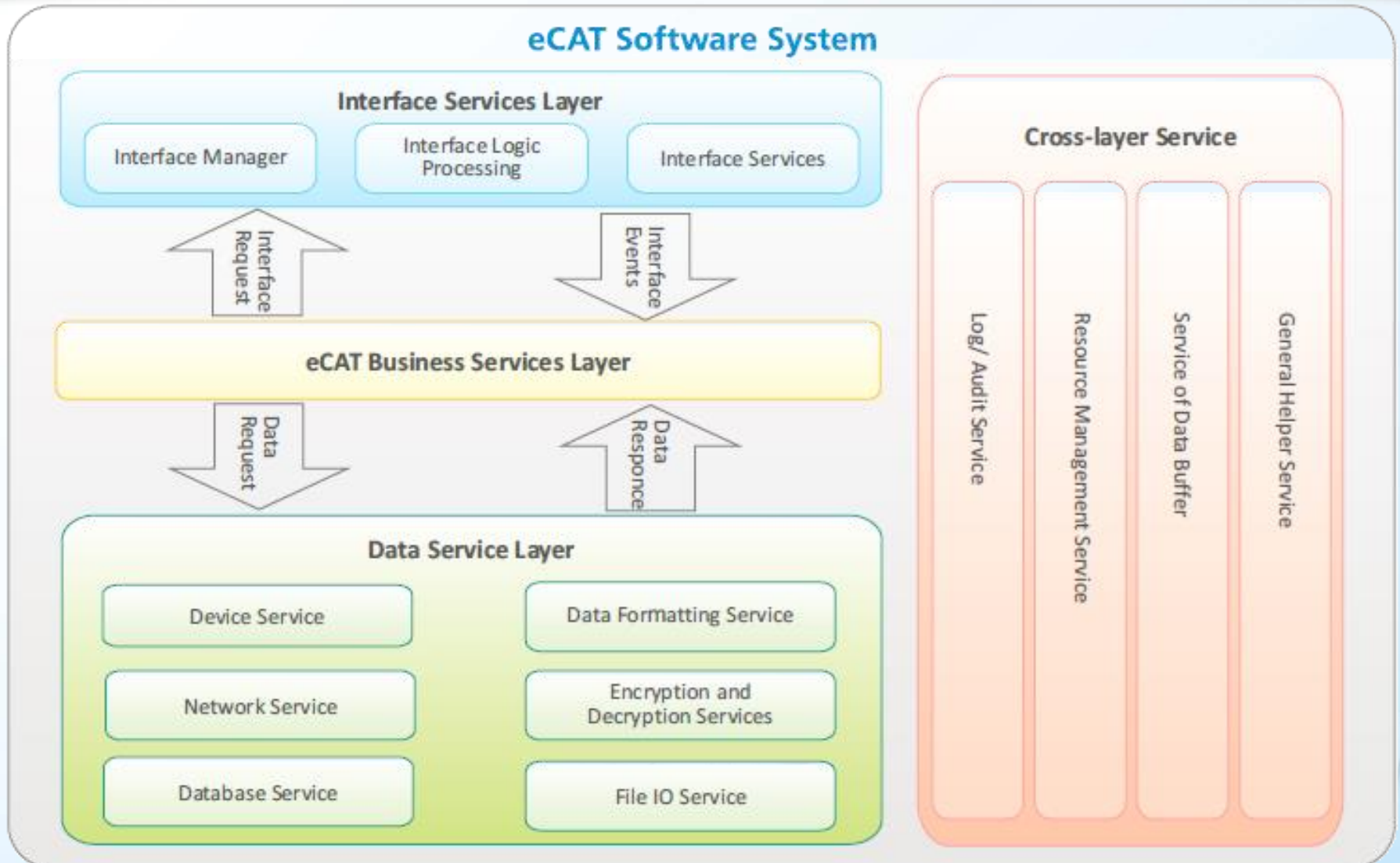
Graphical and configurable user interface

### Intrinsic Security

EMV Level 2, DES, 3DES, MAC, 2048-bit encryption algorithms, bank card device security standards, RKL

# SOFTWARE ARCHITECTURE

## eCAT Software System



## Extended development Platform

- ✓ A series of related tools
- ✓ SDK platform
- ✓ Help Documents
- ✓ User can create additional actions
- ✓ Visual expression flow designer

Support NDC、DDC  
EMV、ADA、RKL...

Support Windows 7

Multilingual  
support

New products support, like  
VTM、sorting machine...

Support Multi-Core CPU

Multiple network protocols support, like HTTP、HTTPS、Web service...

Various touch screen operations support, like gesture...

# MULTI VENDOR SUPPORT



| Vendor            | ATM                        | BNA / CRM      |
|-------------------|----------------------------|----------------|
| NCR               | 5886,5887,6625             | 6636,6676,6635 |
| Diebold           | 560,562                    | 328            |
| Wincor<br>Nixdorf | 2050(xe),2000(xe),<br>2100 | PC4000         |
| Hitachi           | -                          | 2845V          |
| OKI               | -                          | 21SE,21SX      |
| Hyosung           | MX5600(T),5050             | MT8000(T)      |

**Protocol**

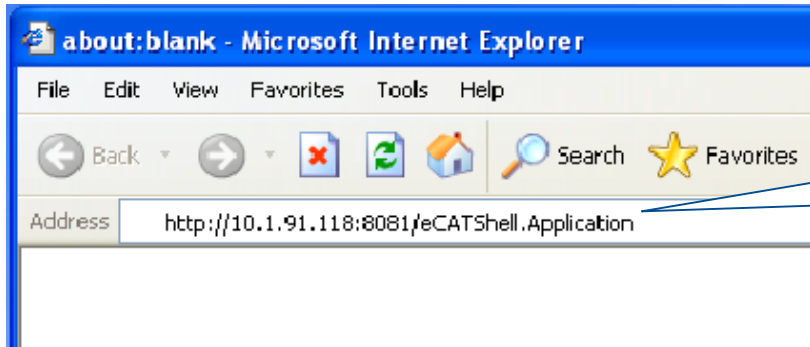
ISO8583, NDC/NDC+,DDC, IFX(soon)

## Non-XFS Device

- ✓ Fingerprint Reader
- ✓ Passport Scanner
- ✓ Identification Card Reader
- ✓ Palm Vein Reader
- ✓ NFC
- .....







Input eCAT Server  
IP address



## Easy installation

Online download from eCAT  
Server, USB or CD/DVD

## Fast update

Auto check and update the latest  
version

- ✓ Configure different advertisements based on different requirements
- ✓ Assign advertisements to suitable pictures based on different requirements
- ✓ Use FEEL Distribution to implement

## Context

**Ad. Before card insert**

**Ad. during transaction**

**Page Common  
Ad. ...**

## Period

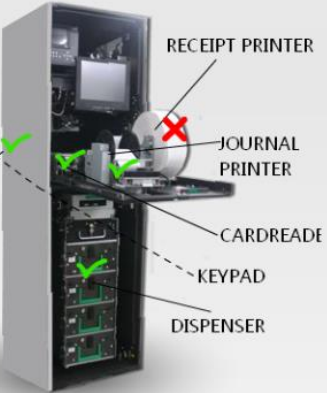
**Long-term**

**Gradual**

**Temporary**

# Visualized Maintenance Guidance

INSERVICE ATM NO.: 101 BRANCH NO.: 902 NETWORK: 2012-2-2 16:29



RECEIPT PRINTER  
JOURNAL PRINTER  
CARDREADER  
KEYPAD  
DISPENSER

Receipt printer: 1375 receipt printer, USB  
Journal printer: NORMAL  
Card reader: NORMAL  
Keypad: NORMAL  
Dispenser: NORMAL

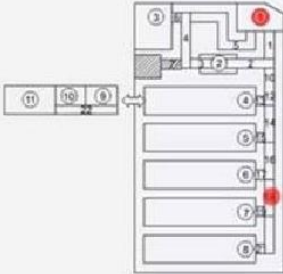
| ID    | STATUS | REMAIN | DEMO | TYPE |
|-------|--------|--------|------|------|
| 0100B | LOW    | 998    | 100  | WITH |
| 0100C | NORMAL | 998    | 100  | WITH |
| 00100 | NORMAL | 998    | 100  | WITH |
| 0100A | NORMAL | 999    | 100  | WITH |

Visual Status Indicator

MAINTENANCE ATM NO.: 101 BRANCH NO.: 902 NETWORK: 2012-2-2 18:44  
CURRENT: BANK OPERATOR


ERRORCODE: 3824

Has money in the Shutter



OPERATION GUI

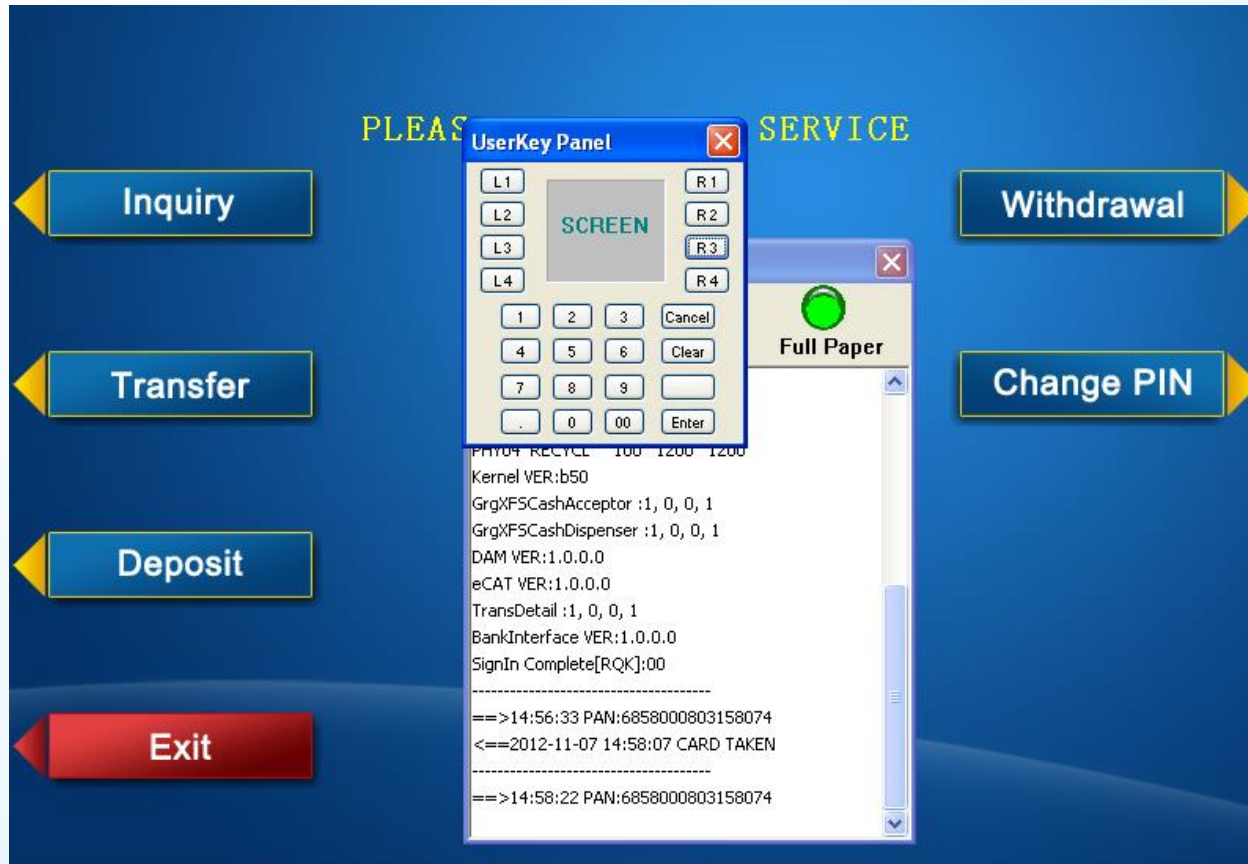
6.Take away the money



RESET TEST PREVIOUS 3 NEXT MUTE RETURN

Video or Image Guidance

## ATM Simulator



- ✓ Record automatic test scripts using Mercury Win Runner
- ✓ Customize scripts according to specific requirement
- ✓ Generate test report
- ✓ Regression test

## ATMC Function Automatic Test Report

| Project Overview                   |  |         |                         |   |        |
|------------------------------------|--|---------|-------------------------|---|--------|
| Project Name                       | CATalyst 3.0R5 V3.5.5  |         | Version                 | B45(WOSA)   |        |
| Project Manager                    | hxlmg  |         | DailyBuild Address      | <a href="http://10.1.3.196">http://10.1.3.196</a> |        |
| Test Description                   |  |         |                         |   |        |
| Test Machine Model                 | H22  |         | Test Executor           | test  |        |
| TestCase Total count               | 232  |         | TestCase Passed         | 222   |        |
| Passed Percent                     | 95.69%   |         | Defect count            | 10  |        |
| Driver Version Match Percent       | 100%   |         | Execute machine address | 10.1.89.28  |        |
| Test Time                          | 2012-8-30 10:32:08 ~ 2012-8-31 10:39:03 (1447minutes)                                |         |                         |   |        |
| Defect Lib Path                    | <a href="http://10.1.3.99/qcbin">http://10.1.3.99/qcbin</a> Domain: R_D Project:ATMC |         |                         |   |        |
| Executor Path                      | Root\CATalyst3.0PR5\b45\AutoTest_H22_XFS\autotest                                    |         |                         |   |        |
| Settlement Transaction Information |  |         |                         |   |        |
| Transaction Type                   | Test case execute  |         | background settlement   |   |        |
|                                    | Count  | Amount  | Count                   | Amount  |        |
| Transfer                           | 13   | 6356.71 | 13                      | 6356.71   |        |
| Withdrawal                         | Normal   | 19      | 9250                    | 19  | 9250   |
|                                    | Abnormal   | 4       | 400                     | 4   | 400    |
| Deposit                            | Normal   | 0       | 0                       | 0   | 0      |
|                                    | Abnormal   | 0       | 1700                    | 0   | 1700   |
| Test Record Table                  |  |         |                         |   |        |
| Number                             | Name   | Result  | Execute Time            | Error Information                                 | Bug ID |
| 1                                  | Card Inquiry (Normal)  | Passed  | 2012-08-30 10:32:42     | -   | -      |
| 2                                  | Card Inquiry (PressKey Timeout)  | Passed  | 2012-08-30 11:41:41     | -   | -      |

## Flexible Customization

Develop Graphic  
Business Flow



Design Page



Configure Package



The screenshot displays the GRG Visual Expression software interface. The top window shows a flowchart with '0 Start' and '10 Welcome'. Below it is a design page for a banking application. The design page features a blue background with white text and yellow buttons. It displays account information: '账户余额: CNY9995548.21' and '可用余额: CNY9995548.21'. A transaction screen prompts the user to '请选择或输入取款金额' (Please select or key in amount) with buttons for 100, 500, and 2000. A message states '单笔最大取款限额为 2000 元' (Single transaction maximum withdrawal limit is 2000 Yuan). Buttons for '更正' (Clear) and '确认' (Confirm) are visible.

The bottom window shows a data table with the following columns: ID, LengthType, Length, AlignMode, AlignChar, FieldType, Description, DataField, DefaultValue, DataFormat.

| ID | LengthType | Length | AlignMode | AlignChar | FieldType | Description | DataField | DefaultValue | DataFormat |
|----|------------|--------|-----------|-----------|-----------|-------------|-----------|--------------|------------|
| 1  | VAR_LL     | 19     | RIGHT     | 0         | BCD       | 主账号         | Account   |              |            |
| 2  | FIXED      | 6      | LEFT      | 0         | BCD       | 处理码         | TransCode | 310000       |            |
| 3  | FIXED      | 6      | LEFT      | 0         | BCD       | ATM流水号      | SerialNo  |              |            |
| 4  | FIXED      | 6      | LEFT      | 0         | BCD       | 交易时间        | TransTime |              |            |
| 5  | FIXED      | 4      | LEFT      | 0         | BCD       | 交易日期        | TransDate |              |            |
| 6  | VAR_LL     | 37     | RIGHT     | 0         | TRACE     | 二磁道数据       | Track2    |              |            |
| 7  | VAR_LL     | 104    | RIGHT     | 0         | TRACE     | 二磁道数据       | Track3    |              |            |
| 8  | FIXED      | 8      | RIGHT     | 0         | ASCII     | ATM编号       | AtmNo     | 13000002     |            |
| 9  | VAR_LL     | 21     | RIGHT     | 0         | BIN       | 个人识别号英文     | Pin       |              |            |
| 10 | VAR_LL     | 73     | RIGHT     | 0         | ASCII     | ATM状态       | AtmStatus |              |            |
| 11 | VAR_LL     | 47     | RIGHT     | 0         | ASCII     | 工作参数        | AtmParam  |              |            |
| 12 | VAR_LL     | 34     | RIGHT     | 0         | BIN       | 值验证码        | MAC       |              |            |
| 13 | VAR_LL     | 19     | RIGHT     | 0         | BCD       | 主账号         | Account   |              |            |
| 14 | FIXED      | 6      | LEFT      | 0         | BCD       | 处理码         | TransCode | 310000       |            |
| 15 | FIXED      | 6      | LEFT      | 0         | BCD       | ATM流水号      | SerialNo  |              |            |
| 16 | FIXED      | 6      | LEFT      | 0         | BCD       | 交易时间        | TransTime |              |            |
| 17 | FIXED      | 4      | LEFT      | 0         | BCD       | 交易日期        | TransDate |              |            |
| 18 | FIXED      | 8      | RIGHT     | 0         | ASCII     | 交易处理金额      | Charge    |              |            |
| 19 | FIXED      | 12     | RIGHT     | 0         | ASCII     | 系统参考号       | RefCode   |              |            |

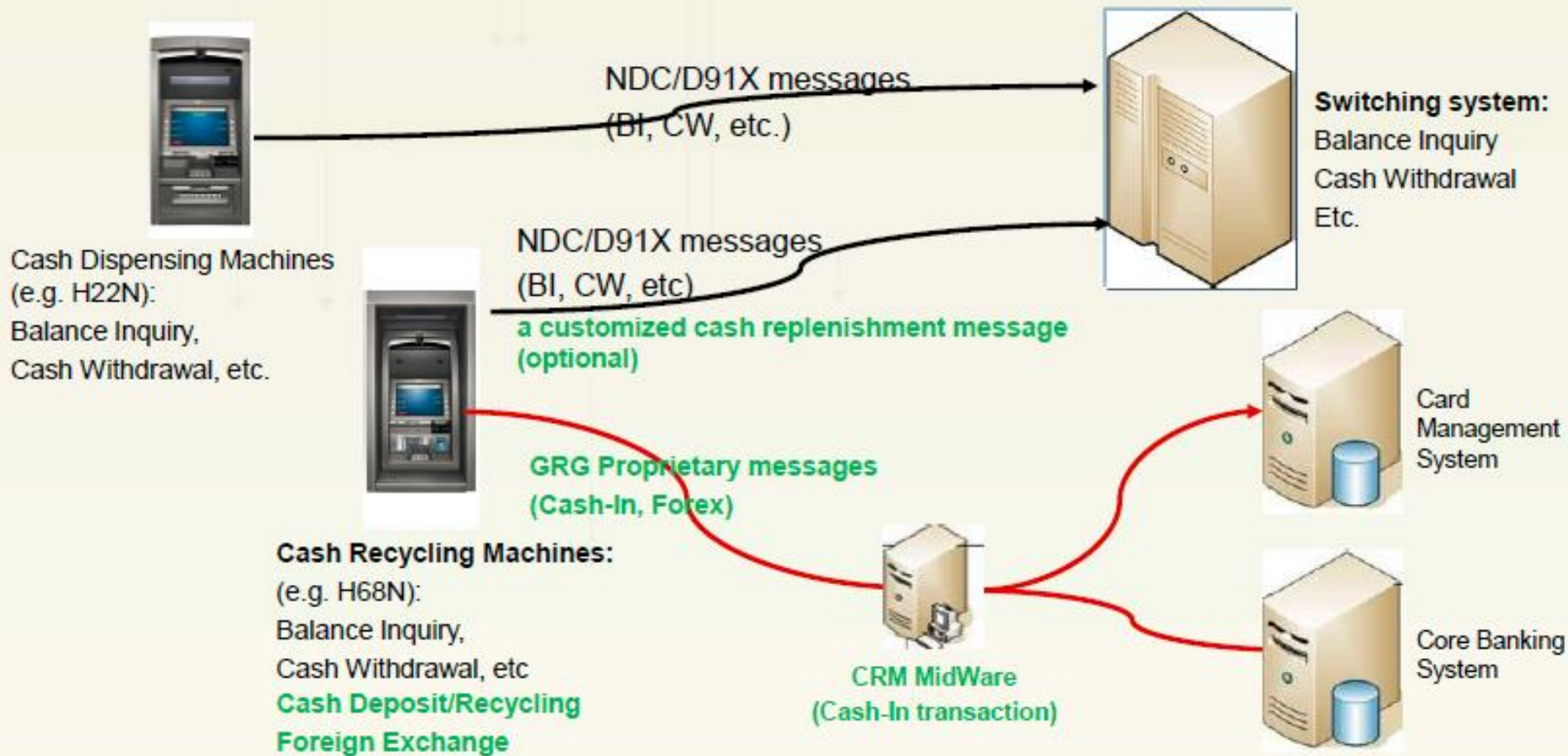
**1** Open Platform eCAT

**2** Advanced Features

**3** Case Study and Advantage



# SUPPORT MIDDLEWARE



## CRM MidWare can support:

- BNA (Bunch Note Acceptor)
- CRM (Cash Recycling Module)





**SNMP Agent**

**Set/Get**

**Trap**



**FEEL View  
/Gasper  
/Proview**

✓ **Based on XFS MIB**

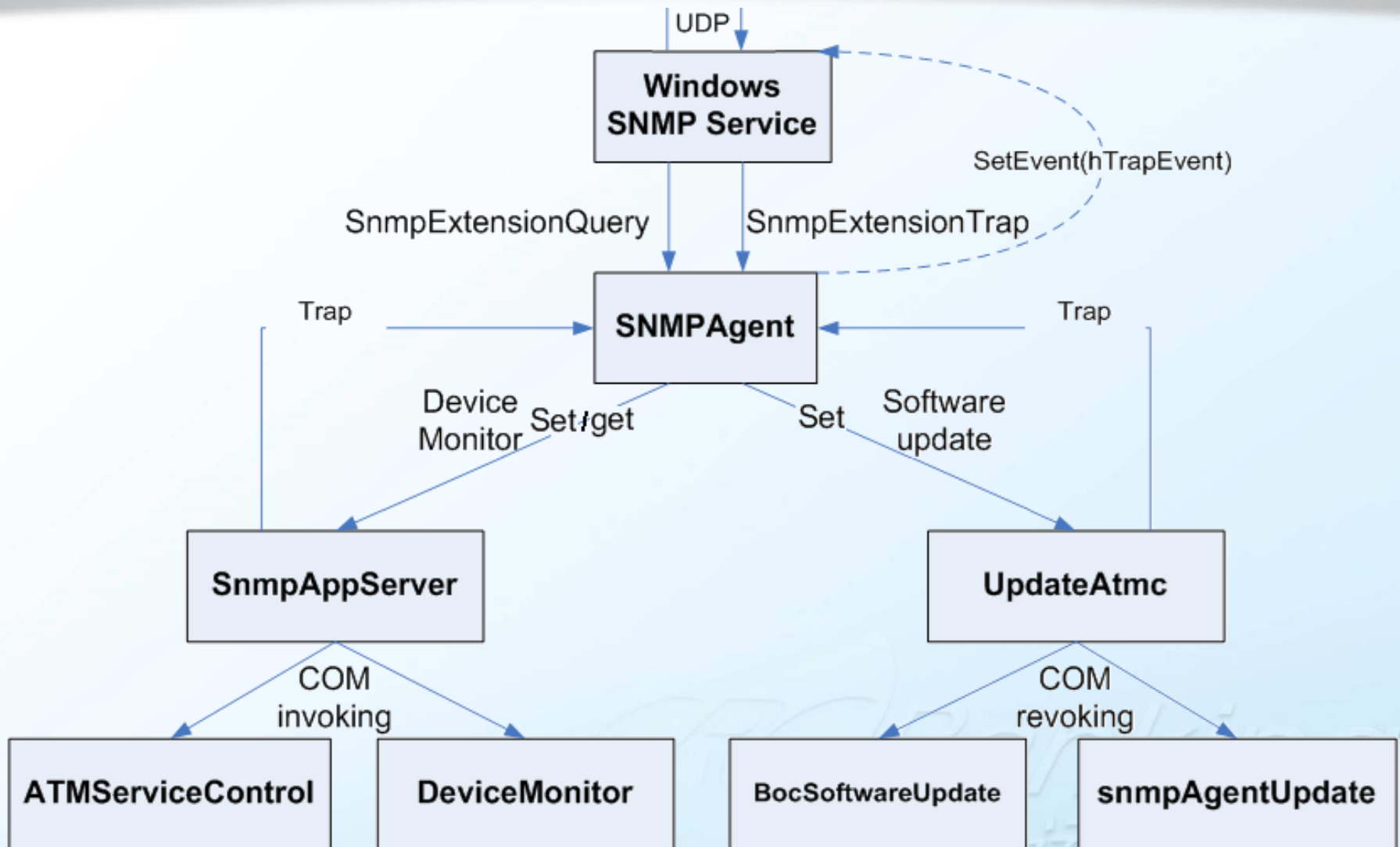
✓ **Set/Get**

- Monitoring system uses Set command to configure the device information
- Monitoring system uses Get command to retrieve the device status by OID

✓ **Trap**

- When an error happened in ATM, the ATM's SNMP agent generates a SNMP trap
- The SNMP agent forwards the trap to Monitoring system

# SNMP COMPATIBILITY



**1** Open Platform eCAT

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## DEVELOP A PALM VEIN SOLUTION

### ✓ Requirement Analysis

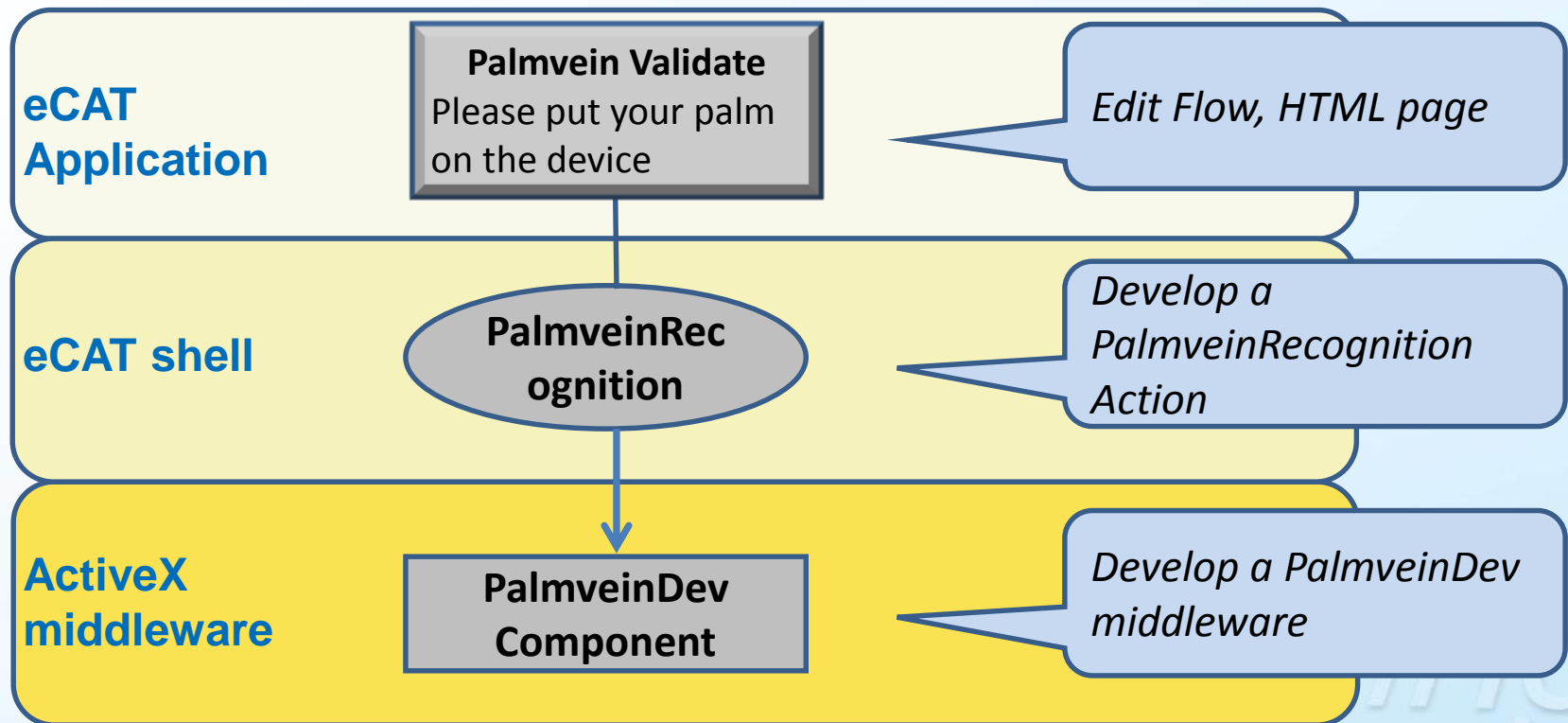
- New device module: Palm vein(non-xfs device)
- Palm vein withdrawal flow is a little different with traditional card withdrawal

### ✓ Design

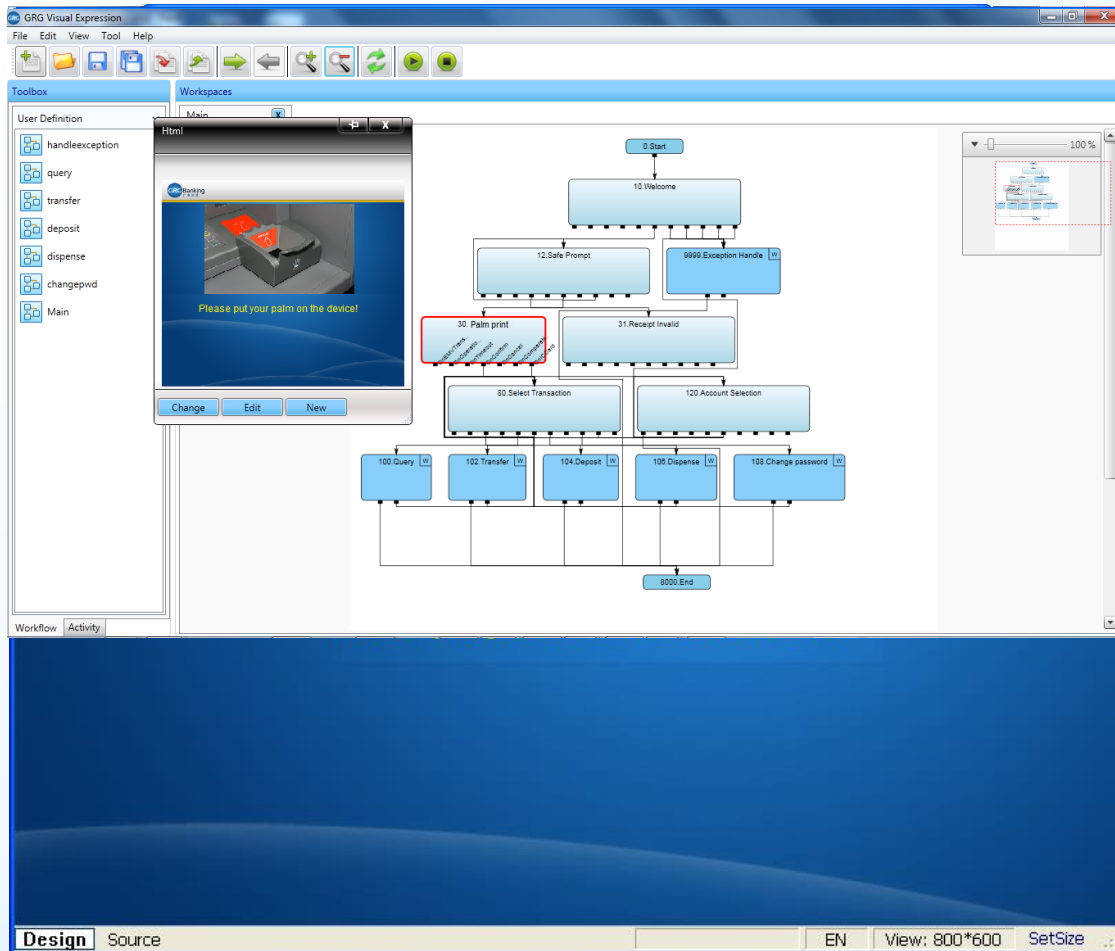
- Add a new ActiveX middleware component by middleware sample template: PalmveinDev
- Add a new Action by action sample template: PalmveinRecognition
- Add a new flow by GVE: Palmvein withdrawal

## HOW TO DEVELOP A PALM VEIN SOLUTION

### ✓ Implementation



## DEVELOP A PALM VEIN SOLUTION



4. Modify  
*PalmVeinWithdra  
waFlow on GVE*



## FEEL Distribution

eCAT



Remote Key Load

FEEL View

## Features

- ✓ 1500+ GRG Recyclers
- ✓ Total solution
- ✓ Remote Key loading
- ✓ Palm Vein

## ✓ **Support Machine**

- 16,000+ ATMs installed eCAT

## ✓ **Timeframe**

- 2 months require analysis
- 2 months design, development and testing
- 4 months installation and implementation

## ✓ **Special Feature**

- EMV/PBOC
- ISO8583
- SNMP status monitor

## ✓ **Stability**

- Run smoothly for 5 months





## ✓ **GRG Product**

- eCAT (Self-service Terminal software)
- FEEL View

## ✓ **Timeframe**

- 2 months require analysis
- 2 months design, development and testing
- 2 months installation and implementation

## ✓ **Supported machine**

- 2000+ ATMs (GRG, NCR, Hitachi, KingTeller)
- ATM & Cash Recycler
- 100 Kiosks

## ✓ **Special Function**

- Implement non-XFS device modules
- Implement an appointment withdrawal
- Support OCR feature
- Support multi-point touch & input



## ✓ **Tailor Made Solution**

- We can customize the solution for you – No out of the box product
- Open for future requirements – Fast implantation of new hardware like biometric devices etc.

## ✓ **Close cooperation with your IT**

- Depending on your needs and structure we can act like:
- Internal developers
- External developers
- 3rd level support

## ✓ **You can rely on**

- A flexible, modern and scalable field proven solution
- Easy to use but powerful secondary development tools plus SDK

## ✓ **Training**

- Software architecture
- SDK training
- Installation and configuration

## ✓ **On-line Support**

- Remote troubleshooting
- Phone, E-mail or IM

## ✓ **On-site Implementation**

## ✓ **On-site support**

## ✓ **New software releases**



# Thank You

[www.GRGBanking.com](http://www.GRGBanking.com)