Rapid or robotic process automation (RA) has accelerated significantly over the last few years. RA represents a valuable addition to the engagement layer for process operations and a useful complement to systems of records. By interacting with existing applications at the graphical user interface level, RA can bring about a “virtual integration” while executing repetitive work with higher levels of accuracy. This can drive significant impact on cost, productivity, time to market and compliance.
Rapid automation plugs the gaps in traditional automation

Traditional business process automation approaches often do not deliver 100% automation for the processes they cover. Gaps and white spaces remain in the solution for which manual intervention is required to successfully process a transaction. Moreover, these automation solutions generally require complex, costly, and time-consuming integration with legacy systems, ERPs, mainframes, and other such systems of records leading to sub-optimal returns of investment.

RA can overcome these inefficiencies and integration challenges. RA is a software program that emulates people interactions with software systems such as ERPs, Microsoft Office documents, workflow applications, and databases to execute tasks faster and more reliably than humans can. Simple, rule-based, repeatable processes that don’t need complex contextualization are most suitable for RA. Furthermore, integration with third-party systems happens at the graphical user interface (GUI) level, avoiding the complexity and security risks of doing so at the database level.

This enables automation of functions such as straight-through processing (of inputs arriving from different systems—web pages, excel files, emails), dual data entry, virtual integration between different systems, rule-based decision making, and creating responses to data extraction and data reporting requests.

Since RA interacts with different software systems at the same GUI level as a human user of the system, no changes to an enterprise’s existing IT systems are made.

Easy and fast deployment with low risk, greater flexibility, more security and compliance

• RA enables faster deployment with minimal risks as it does not require any IT integration with a third-party system and can work across multiple platforms (ERP, workflow, legacy, Web)
• The modularity allows for easy deployment
• RA can ramp up or ramp down the number of “robots” to meet the changes in process volumes. This flexibility allows the enterprise to keep employee staffing at an optimal level without needing to change it to meet cyclical or sudden volume spikes and troughs
• It is non-intrusive as it does not require access to underlying data or code. It has a drag-and-drop interface for development and deployment
• RA maintains data integrity by leveraging existing application presentation layer and the underlying application logic
• RA maintains a detailed audit trail of every transaction it undertakes
• RA ensures high security as it does not store any business data. It is compliant with a client’s SSO (single sign-on) policies to ensure valid authentication and security
• It can be programmed to make rule-based decisions
• RA can also send out pre-configured emails after a task is completed or at any time during the task
• It creates and updates activity trackers (such as excel) and maintains a log of every transaction at the field level for a comprehensive audit trail. This is useful for compliance purposes

**Non-intrusive simple integration at the user interface level**

RA automates the material parts of repetitive work by uniquely identifying each part of a task or action a user performs at the GUI stage. Genpact’s RA solutions are based on the Microsoft.net framework and can support various platforms and types of application control including Windows common controls, Internet Explorer HTML controls, Java, and .NET.

**Windows-based applications:** RA gets the object IDs of various elements in the applications to identify the objects. It then performs various actions on these applications. For example, a Windows action command can be used to activate a window, get the window title, or minimize the window.

**Citrix-based applications:** Image recognition is used to identify the applications inside Citrix. Once the application is identified, RA passes the values to these applications using key strokes and mouse clicks. RA interfaces with virtual desktop infrastructure (VDI) based applications similar to Citrix-based applications (Figure 2).

**Development setup architecture**

• RA can be hosted on Genpact desktops or on virtual desktops in a customer Citrix/VDI setup
• RA software can be installed on a physical or virtual desktop. It has a light footprint and does not have any databases or web servers as part of its setup
• If applications are accessed via Citrix, RA can log in to Citrix and then access the applications from Citrix

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**System requirements**

**Supported operating systems**

All versions (32 bit and 64 bit) of the following operating systems are supported by RA:

- Windows 2000
- Windows XP
- Windows Server 2003
- Windows Vista
- Windows Server 2008
- Windows 7

**Hardware requirement (Minimum)**

- **Processor:** Intel Dual Core 2.0 GHz or equivalent AMD Athlon X2 64 1.8 GHz
- **Memory/ RAM:** 2 GB for Windows XP, 4 GB for Windows Vista/Windows 7
- **Hard drive space:** 80 MB free for installation. At least 5 GB of space recommended for ongoing usage
- **Test environment:** User ID and password
- **Production environment:** User ID and password
  - Test environment should be a replica of the production environment.

**RA is completely secure. It involves five levels of security:**

1. **Action level**
   - Ability to encrypt any keystrokes
   - Identification and encryption of password object on Web, UI, DB, or terminal screen
   - Ability to run a process in stealth mode
   - Use of pause command to enter password manually
2. Task level
- Individual task-level passwords for task execution as well as editing
- Prevention of unauthorized editing or execution of your automated processes

3. User authentication
- Streamlined user management using a separate password per user or integrating user-level security
- Use of pause command to enter password manually during process execution (if required)

4. Audit trail
- System logs capability provides a user-level repository of all events in the automation environment
- Any changes made to the task, errors, deployment events, workflow creations, or any other actions can be viewed in the system log
- System logs can be exported to a .csv file and can be filtered by date and type of event

5. Encryption
- EXEs created by RA are fully encrypted
- All personal protected information provided during process creation can be highly encrypted

The separate log-in IDs and passwords in RA keep transactions separate from each other and enable precise accountability. The extensive audit trails at the keystroke level allow for greater degree of assurance.

![Figure 2]

About Genpact
Genpact (NYSE: G) stands for “generating business impact.” We design, transform, and run intelligent business operations including those that are complex and specific to a set of chosen industries. The result is advanced operating models that support growth and manage cost, risk, and compliance across a range of functions such as finance and procurement, financial services account servicing, claims management, regulatory affairs, and industrial asset optimization. Our Smart Enterprise Processes (SEP™) proprietary framework helps companies reimagine how they operate by integrating effective Systems of Engagement™, core IT, and Data-to-Action Analytics™. Our hundreds of long-term clients include more than one-fourth of the Fortune Global 500. We have grown to over 68,000 people in 25 countries with key management and a corporate office in New York City. Behind our passion for process and operational excellence is the Lean and Six Sigma heritage of a former General Electric division that has served GE businesses for more than 16 years.

For more information, contact technology@genpact.com and visit www.genpact.com/home/solutions/systems-of-engagement

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