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A Storehouse of Vast Knowledge on
Software Testing and Quality Assurance
Understanding
of
Automation Framework

Introduction to Test Automation Framework

Areas covered Include:

- **What an Automation Framework is ?**
- **How many types of Automation Framework are there ?**
- **How to select & Deploy an Automation Framework ?**
- **What are the Constituents of Automation Framework ?**

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What a Test Automation Framework is ?

It is a structured combination of :

- **Various Assumptions for Testing**
- **Testing Concepts**
- **Testing Practices**

Aim is to provide support to Automated Software Testing

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Utility of Test Automation Framework

- **Provides an Outline of overall Test Structure**
- **Ensures Consistency of Testing**
- **Minimizes the Amount of Code for Development - thereby Less Maintenance**

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Utility of Test Automation Framework

- **Maximizes Reusability**
- **Reduces Exposure of Non-Technical Testers to Code**
- **Enables Test Automation using Data**

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How Many Types of Automation Frameworks are there ?

Generally there are 4 Types :

- **Data Driven Automation Framework**
- **Keyword Driven Automation Framework**
- **Modular Automation Framework**
- **Hybrid Automation Framework**

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Data Driven Automation Framework

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Data Driven Automation Framework

Advantages :

- **Repeated use of Test Scripts with Different Inputs and Response Data coming out of Predefined Dataset**
- **Easy to implement in IBM - RFT with the help of Datapools**
- **Helps in Reducing Coding for Large Test Cases**
- **Ease of Testing of Time-Consuming & Complex Test Cases**

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Keyword Driven Automation Framework

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Keyword Driven Automation Framework

Attributes :

- **As the Name suggests, it enables Keyword Driven Testing or Table Driven Testing**
- **Data & Keyword Tables being Independent of the Automation Tool**
- **Enables Documentation of the Functionality of the Application under Test (AUT) in A Tabular Format**

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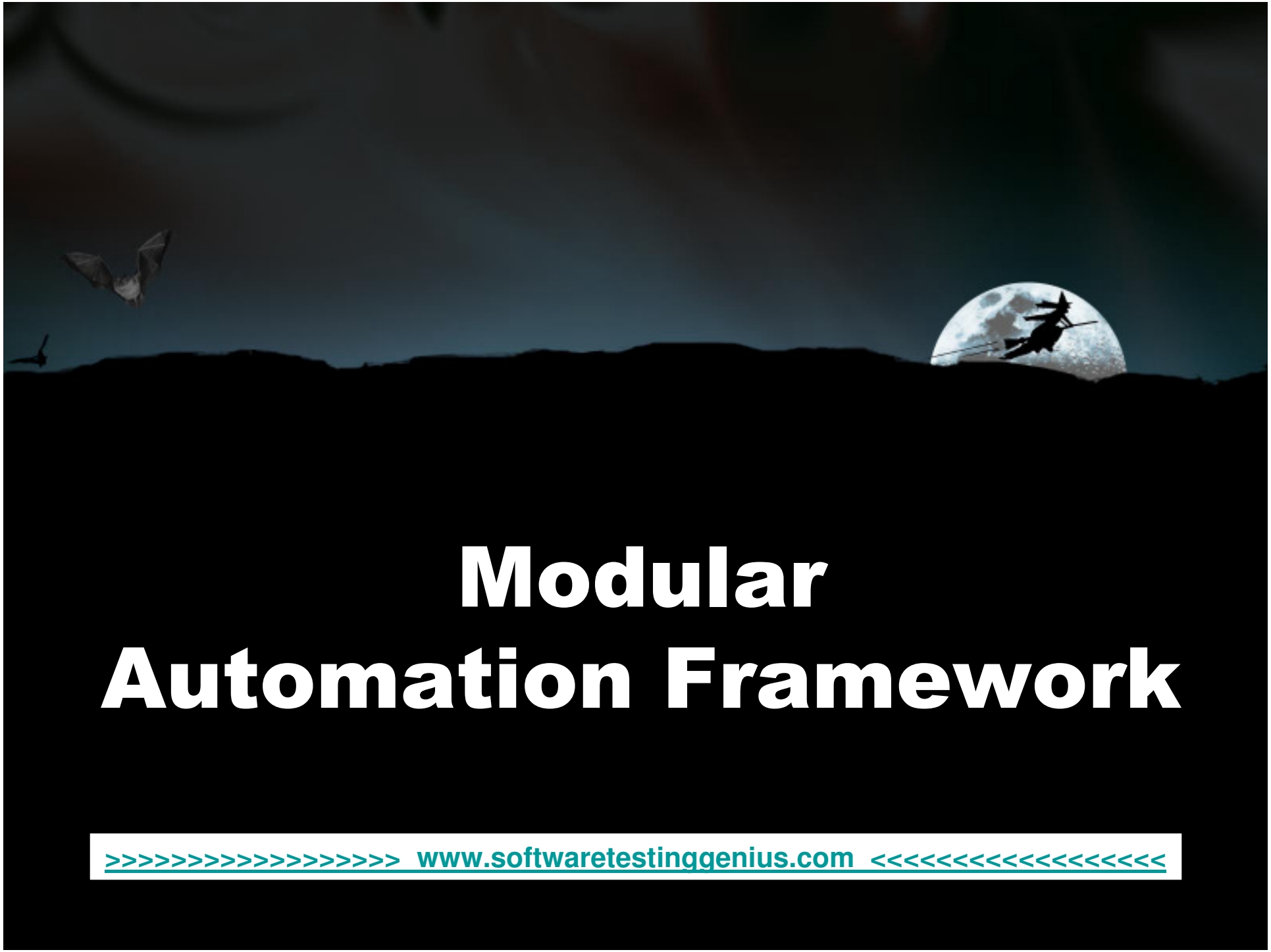

Modular Automation Framework

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Modular Automation Framework

Types of Modular Frameworks :

- **Test Script Modularity Framework:**

  Enables creation of Small, Independent Scripts representing Modules & Functions of the Application under Test (AUT)

- **Test Library Architecture Framework:**

  Enables creation of Library Files representing Modules & Functions of the Application under Test (AUT)

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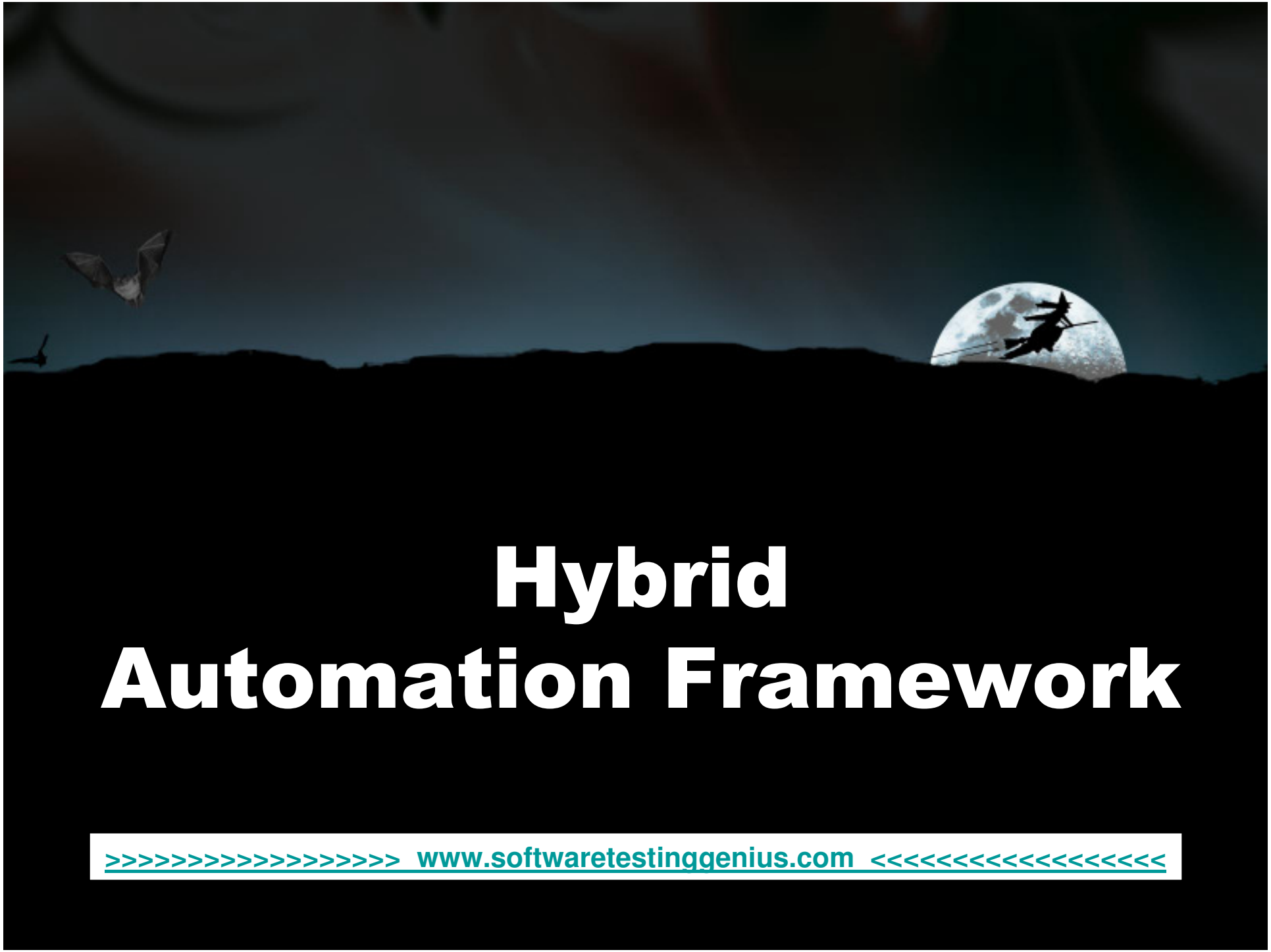

Hybrid Automation Framework

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Hybrid Automation Framework

Attributes :

- **It is the Most Popularly Implemented Framework**
- **It is a Combination of the Three Types of Frameworks described before**
- **It has an Ability of Evolving Itself Over a Passage of Time and Over Many Projects**

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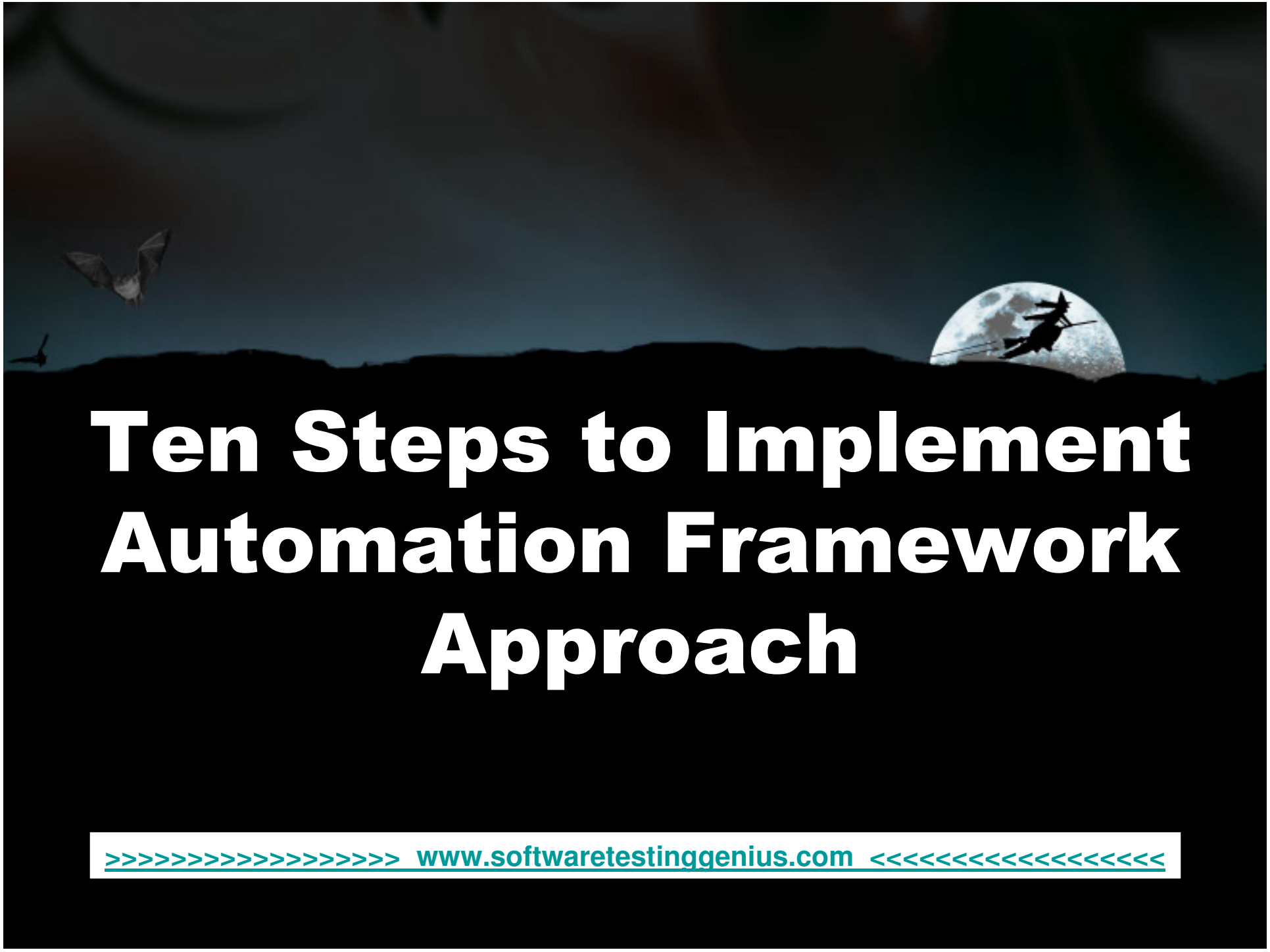

Ten Steps to Implement Automation Framework Approach

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How to Implement Test Automation Framework Methodology

Steps 1 and 2 :

1) Identification of the Scope of Testing:

Company Oriented, Product Oriented, Project Oriented

2) Identification of the Needs of Testing:

Identify Types of testing e.g. FT, Web Services etc. and application / modules to be tested

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Ten Steps for Implementation of Test Automation Framework Methodology

Steps 3 and 4 :

3) Identification of the Requirements of Testing:

Find out the Nature of Requirements, Identification of type of actions for each requirement & identification of High Priority Requirements

4) Evaluation of the Test Automation Tool:

Preparation of Evaluation Checklist, Identification of the Candidate Tools Available, Sample Run, Rate & Select the

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Ten Steps for Implementation of Test Automation Framework Methodology

Steps 5 and 6 :

5) Identification of the Actions to be automated:

Actions, Validations & Requirements supported by the Tool

6) Design of the Test Automation Framework:

Framework Guidelines, Validations, Actions Involved, Systems Involved, Tool Extensibility Support, Customs Messages & UML Documentation

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Ten Steps for Implementation of Test Automation Framework Methodology

Steps 7 and 8 :

7) Design of the Input Data Bank:

Identification of Types of Input file, Categorization & Design of File Prototypes

8) Development of the Automation Framework:

Development of Script based upon Framework Design, Driver Scripts, Worker Scripts, Record / Playback, Screen / Window / Transaction, Action / Keyword & Data Driven

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Ten Steps for Implementation of Test Automation Framework Methodology

Steps 9 and 10 :

9) Population of Input Data Bank:

Different Types of Data Input, Population of Data from Different Data Sources, Manual Input of Data and Parent – Child Data Hierarchy

10) Configuration of the Schedulers:

Identify Scheduler Requirements & Configure the Schedulers

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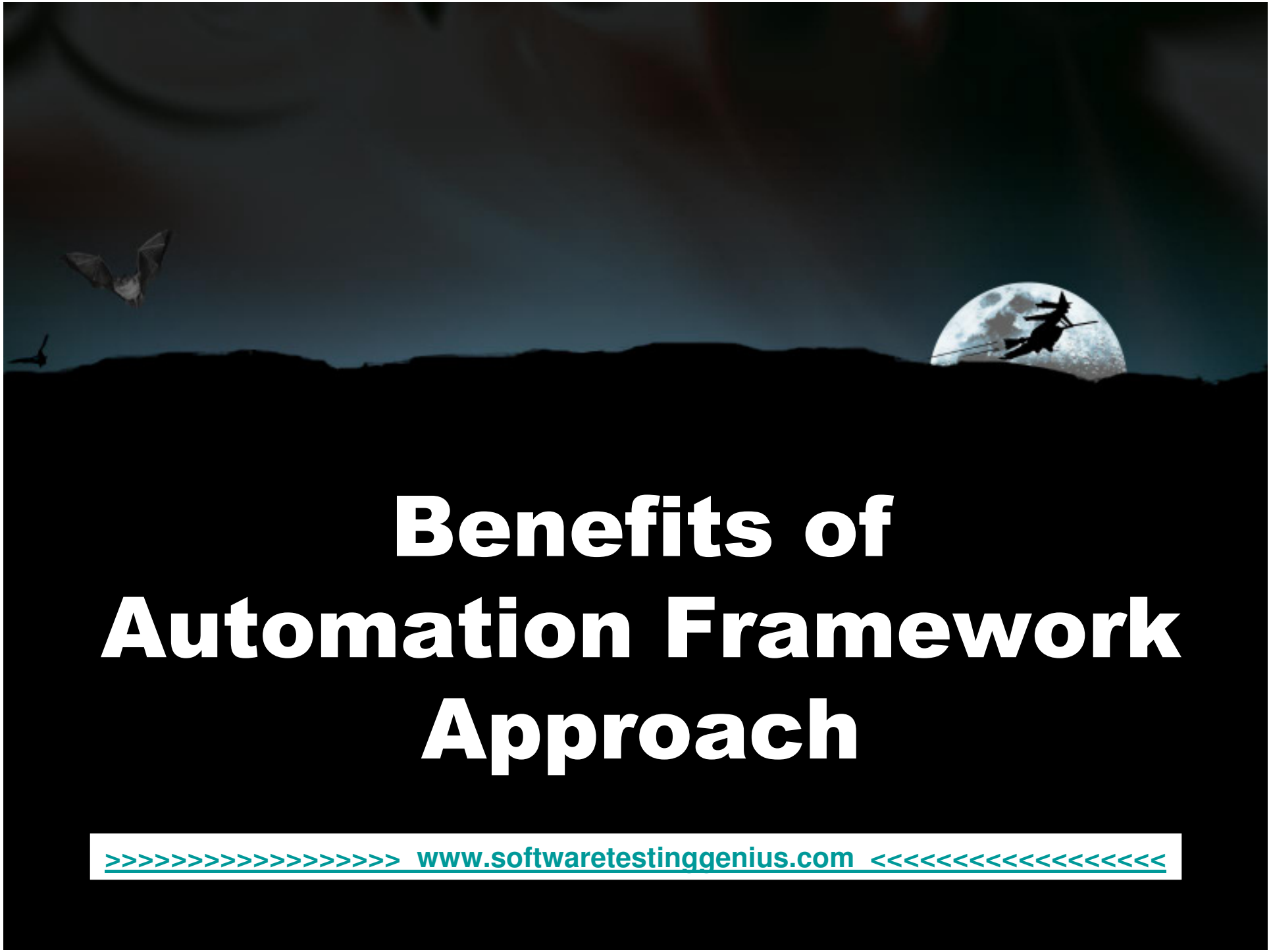

Benefits of Automation Framework Approach

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Automation Framework Combined with Systematic Approaches

Yields Following Benefits :

- **Significant Reduction in Testing Cycle Time**
- **Comprehensive Coverage against Requirements**
- **Use of a "Common Standard" across the Organization / Product Team / Project Team**

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Automation Framework Combined with Systematic Approaches

Yields Following Benefits :

- **Generation of Reusable Test Scripts (Utility Functions)**
- **Systematic Maintenance of Automation Scripts**
- **Data Pooling**

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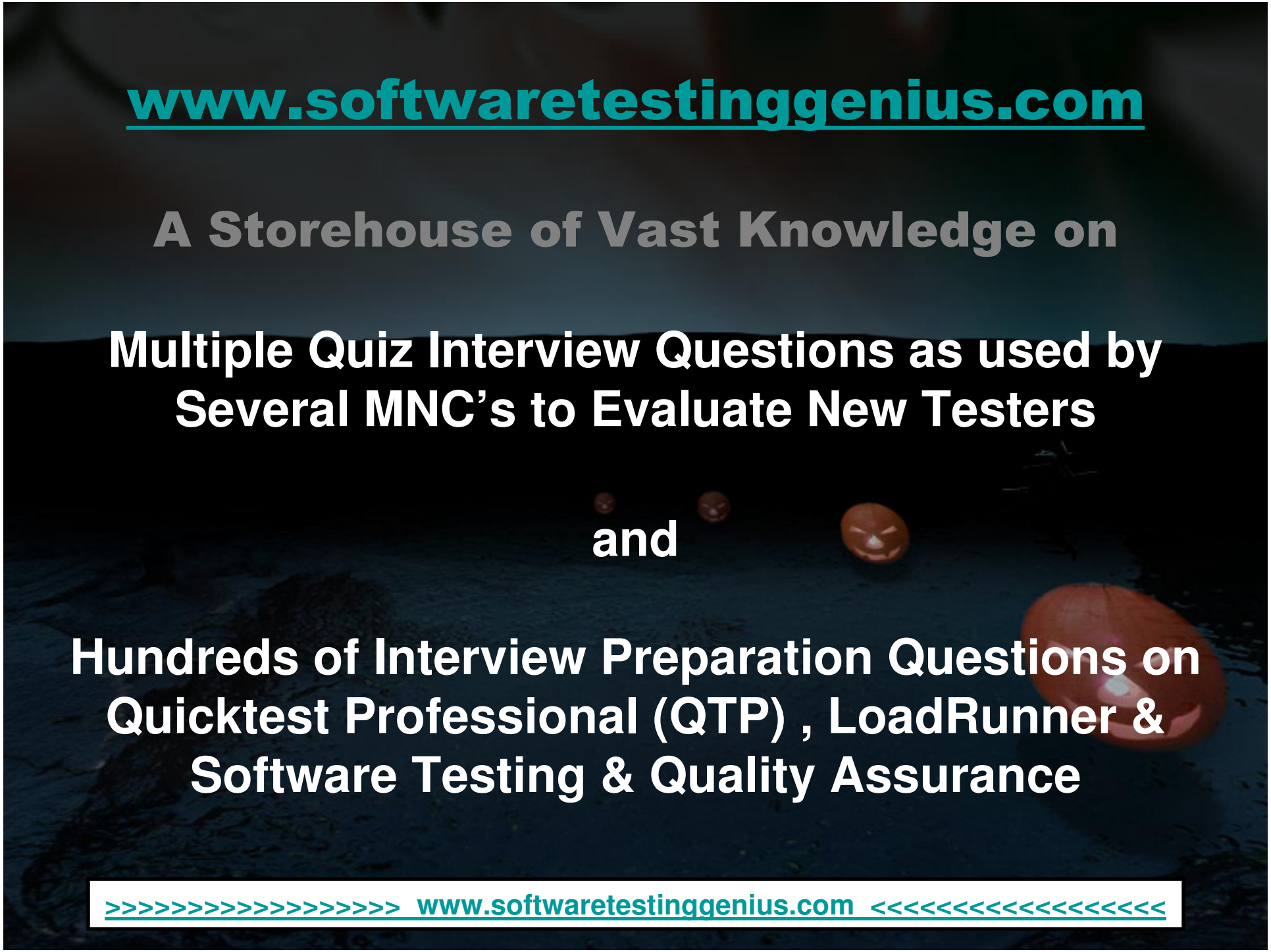
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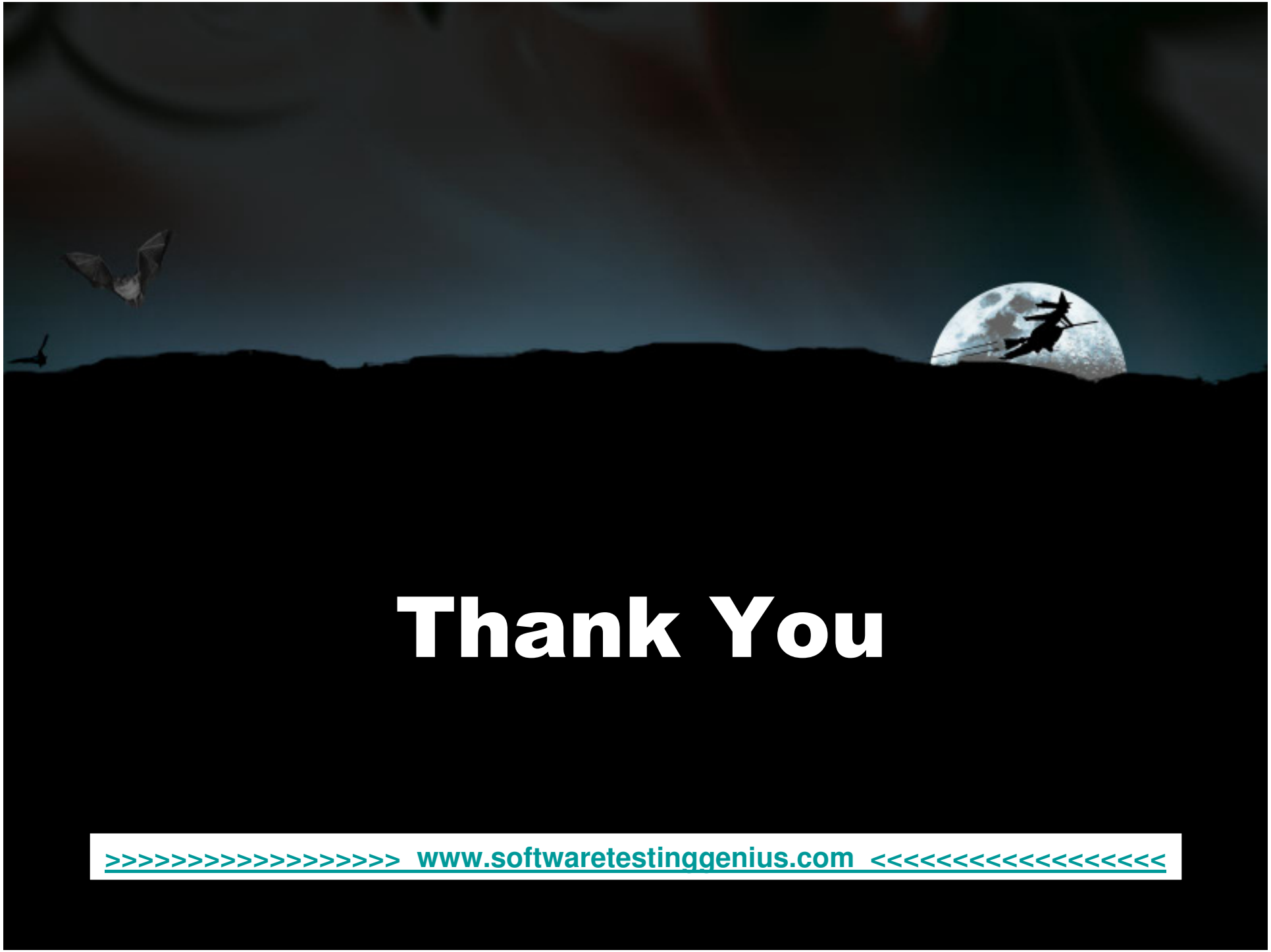
Thank You
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