Letter to Potential Partners April 2016

Beneficial LLC and IBOA Corp are seeking partners in pursuit of DOD and other Government agency contracts.  We are specifically targeting the U.S. Army CERDEC Industry Day as an enabling event to further our goals.  Our core strengths include systems and software engineering, network management, database management, and Test and Evaluation.  We are a small organization which provides fluidity and flexibility in our endeavors.  We have developed two key products which we are introducing in this letter and in our effort to gain partnerships and win DoD business.  These two products are independent of one another, however when deployed in an integrated manner, significant synergistic gains are realized.   When deployed smartly and proactively, these two products become “extreme force multipliers.” Benefits include efficient integration, reduced cycle times, less time preparing, more time analyzing, reduced staff, and reduced costs.  Our business model assumes large-scale deployment of these two products into a large number of DoD network laboratories. Our in-depth knowledge and experience with these two products positions us to win or help win large DOD contracts when test automation is a goal and priority. These two key products are the following:

         IBOA Auto-Alias / Auto-Alias Creation Utility

         IBOA TAGA (Test Auto Generation and Analysis) Framework

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| **IBOA Product** | **File Count (Note1)** | **SLOC (Note1)** | **IBOA Product Description** |
| IBOA Auto-Alias Utility | Min Files: 1  Max Files: 5 | Min: 250  Max: 1000 | Increases general productivity in standard Unix/Linux shell environments |
| IBOA TAGA Framework | Files: 100  Subdirs: 20 | 7000 | Provides simple and repeatable automated testing and unique insights into test networks |

1. Counts are approximate; Min/Max file counts provide differing levels of capability; Note that significant and large amounts of processing are possible with small Unix/Linux Shell Script SLOC.

Early versions of the IBOA Auto-Alias Utility were successfully deployed at Alcatel USA and many other telecom and software companies. Early versions of the TAGA framework were successfully deployed at Harris Corp during performance and functional testing of the Soldier Radio Waveform (SRW).  The TAGA framework has integrated with Harris Network Simulation (NetSim) scripts and in the Harris 10 and 40 node network simulations. The framework has been used in the CERDEC C4ISR Systems Integration Lab (CSIL) during the Mid-tier Networking Vehicular Radio (MNVR) Lab-based risk reduction and has been used in the assessment of emerging standards and technologies within the U.S. Army CERDEC S&TCD SEAMS.

Specific areas of interest at the CERDEC Industry Day:

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| Contract Type: FFP/CPFF Contact: ACC-APG | Estimated Solicitation Release Date: 2QFY16 |
| S&TCD Enabling Infrastructure | Est. Value $TBD |
| Systems Engineering Support (GSA Schedule) | Est. Value $75M |

IBOA Auto-Alias / Auto-Alias Creation Utility April 2016

The IBOA Auto-Alias utility is used to easily add, insert, edit, trace, and manage (archive) unix/linux alias commands. The IBOA Utility provides a standardized and simplified mechanism to create and manage aliases allowing for more prolific usage and larger benefit as a result. By reducing keystrokes and providing meaningful shortcuts, smart alias command usage significantly improves the productivity of test and development staffs. When deployed smartly and proactively, the IBOA Auto-Alias utility becomes an “extreme force multiplier.” Benefits include efficient integration, reduced cycle times, less time preparing, more time analyzing, reduced staff, and reduced costs.  Our in-depth knowledge and experience with this product positions us to win or help win large DOD contracts when DT&E cycle time reductions are a goal and priority. The IBOA Auto-Alias Utility is easily installed via the single IBOA Install File. The IBOA Auto-Alias Utility is described as follows:

         ***IBOA Auto-Alias / Auto Alias Creation Utility*** is described here.

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| **File Count** | **SLOC** | **IBOA Product Description** |
| Min: 1  Max: 5 | Min: 250  Max: 1000 | Increases general productivity in standard Unix/Linux shell environ; Min (1) to max (5) file counts provide increasing levels of capability. |

         ***Six (6) CORE Comands:*** IBOA Auto-Alias Utility Six (6) Core Commands are described.

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| **IBOA Utility Core Alias** | **IBOA Utility Core Command** | **IBOA Utility Alias Six (6) Core Command Description** |
| aa | Add alias | Used to add a new alias or edit an existing alias into the default .bashrc.iboa.\* file for which it has been default configured; Note that the add alias (aa) and edit alias (ea) provide identical functions. |
| ea | Edit alias | Used to add a new alias or edit an existing alias into the default .bashrc.iboa.\* file for which it has been default configured; Note that the add alias (aa) and edit alias (ea) provide identical functions. |
| ia | Insert Alias | Used to insert an existing alias into the default .bashrc.iboa.\* file. |
| iap | Insert Alias (P)revious | Used to (create and) insert an alias ((p)revious command as value) into the default .bashrc.iboa.\* file. |
| iapw | Insert Alias (P)revious (W)atch | Used to (create and) insert an alias ((p)revious command as value) with capability to ((w)atch) repeatedly) into the default .bashrc.iboa.\* file. |
| ta | Trace Alias | Used to trace an alias to the root of the alias command intent |

A complete description of the IBOA Auto-Alias Utility can be found in the Appendix A.

IBOA Test Auto Generation and Analysis (TAGA) Capabilities / Features April 2016

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| #####################################################  # Copyright 2016 IBOA Corp  # All Rights Reserved  #####################################################  =============================  TAGA Features:  =============================  Deployment:  -----------  1. Unix/Linux shell script-based capabilities reduce dependencies and simplify deployment  2. Auto Self Replication  3. Auto Key Generation and Distribution  Run-time:  -----------  1. Auto Configuration of Interface Names and Host Names (via targetList)  2. Auto Determination of Network Environment and Environment based Auto Configuration  3. Auto Network Node Time Synchronization Verification  4. Auto Distribution of (updates to) Configuration  5. Auto File Collection and Process Cleanup  6. Auto Generation of Analytical Artifacts  7. Auto resource utilization monitor and display  8. Distributed and Parallel Processing provides for timely and robust data generation and collection  9. Policy-Based Management (e.g. Log Mgt and Network Overhead Control) (Note1)  10. Auto Fault Detection and Recovery (Condition-based Automatic Node and Network-wide Reboots)  - this automatically pinpoints network faults  - this allows for \*unmanned\* and \*24x7\* testing  11. TAGA Convergence utility  - simplifies determination of network stability, usability and test scenario repeatability  - allows for user-configurable blacklist handling  12. Precise synchronization of traffic generation initiation  13. Six levels of run-time output - user specified  Extendability:  -----------  1. Start of Test (Traffic), Middle of Test (Traffic), and End of Run Test (Traffic) Test Shells Provided  2. TAGA Provided Samples include Pub/Sub implementation and File Input/output in Python and C languages  Scalability:  -----------  1. TAGA Display scales automatically based on node count and duration  2. TAGA 'Run and Mon' Utility scales automatically based on target list update  3. TAGA Utility scales well by limiting configuration changes to two primary configuration  files (config, targetList.sh) and a few key params (timer delays, traffic rates/counts, etc)  4. Round-robin and staggered starts help avoid traffic overload during large network tests  Ease of Use:  -----------  1. Basic Network Health Check at a single commmand (run or mon)  2. Tailorability of Displays  3. Standardized INFO, WARN, and ALARM tags simplify filtering (Note1)  4. "Go Remote" "Probe" "Prep" "TimeTimer" and other time saving utilities  5. Human Readable and Tailorable Timestamps  6. Multiple Interfaces per Host supported (Note1)  Other:  -----------  1. IBOA Auto Alias Utility is bundled with the TAGA Framework Release  - enables fast and automatic creation of individual and group (team) specialized aliases  - smart aliases increase workflow and productivity by reducing keystrokes and input errors  - smart aliases allow for more work at the end of the day and reduce cycle times  - enables fast filter creation for enhanced data analysis  - fosters teamwork, collaboration, and communication  2. Sample Filters and other extensions available upon request to info@iboa.us  =============================  TAGA Future Extensions:  =============================  1. More capable Automated Test Analytic Artifact Generation (ATAAG) (TM pending) (IBOA AI filters).  2. Complete implementation of items identified by Note1 (Initially/Partially supported items).  3. Additional protocol support (options to UDP, TCP, SSH, etc.)  4. Scalability and Performance Improvements  5. IPv6 Support  =============================  TAGA System Requirements:  =============================  1. Linux-like operating environment  2. Bash or equivalent shell (for full capabilities)  3. libssh (ssh)  4. libpcap (tcpdump)  5. mgen, iperf, or similar traffic generation engines  6. IPv4-based network addressing scheme  ---------  NOTES:  ---------  Note1: Initial/Partial Support Only |

# **Appendix A**

IBOA Auto-Alias / Auto-Alias Creation Utility April 2016

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| iap | Insert Alias (P)revious | Used to (create and) insert an alias ((p)revious command as value) into the default .bashrc.iboa.\* file. |
| iapw | Insert Alias (P)revious (W)atch | Used to (create and) insert an alias ((p)revious command as value) with capability to ((w)atch) repeatedly) into the default .bashrc.iboa.\* file. |
| ta | Trace Alias | Used to trace an alias to the root of the alias command intent |

         ***User/Group/System Config:*** IBOA Auto-Alias Default Configurations is described here.

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| **IBOA Utility Alias** | **IBOA Utility Command** | **IBOA Utility Alias Command Description** |
| aau | Add alias (U)ser | Used to add a new alias or edit an existing alias into the .bashrc.iboa.user.$userId file for which it has been automatically configured; Note that the add alias (aa) and edit alias (ea) provide identical functions. *Note that* ***this alias is NOT normally used*** *since the more terse ‘aa’ command is typically configured and preferred instead.* |
| aag | Add alias (G)roup | Used to add a new alias or edit an existing alias into the .bashrc.iboa.group.$groupId file for which it has been automatically configured; Note that the add alias (aa) and edit alias (ea) provide identical functions. *This alias is used when changes* ***for all users of an entire group (unix/linux work group)*** *are desired.* |
| aas | Add alias (S)ystem | Used to add a new alias or edit an existing alias into the .bashrc.iboa.system file for which it has been automatically configured; Note that the add alias (aa) and edit alias (ea) provide identical functions. *This alias is used when changes* ***for all users of the entire system (computer)*** *are desired.* |
| iau | Insert alias (U)ser | Used to insert an existing alias into the .bashrc.iboa.user.$userId file for which it has been automatically configured; *Note that* ***this alias is NOT normally used*** *since the more terse ‘ia’ command is typically configured and preferred instead.* |
| iag | Insert alias (G)roup | Used to insert an existing alias into the .bashrc.iboa.group.$groupId file for which it has been automatically configured; *This alias is used when changes* ***for all users of an entire group (unix/linux work group)*** *are desired.* |
| ias | Insert alias (S)ystem | Used to insert an existing alias into the .bashrc.iboa.system file for which it has been automatically configured;  *This alias is used when changes* ***for all users of the entire system (computer)*** *are desired.* |

         ***Sample Utility Aliases:*** IBOA Auto-Alias Utility Sample Utility Commands shown here.

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| **IBOA Utility Alias** | **IBOA Utility Command** | **IBOA Utility Alias Command Description** |
| lr | Listing (R)everse-Time order | Listing (R)everse-Time order |
| s | Search | Search for Unix/Linux process |
| u | Up | Move up one directory (change directory up one level) |
| uu | Up Up | Move up two directories (change directory up two levels)  Note: The (u)p commands are supported for 10 levels by default |
| gt,  ge | (g)o to (t)mp,  (g)o to (e)tc | Go to /tmp directory (provided here as sample ‘goto’ command)  Note: Such “Goto” commands are extremely useful by streamlining navigation to commonly used user, group, or system directories. |

# **Appendix B**

Watch our IBOA video on Youtube: <https://www.youtube.com/watch?v=T2YWFmDozqc>

Watch our TAGA video on Youtube: <https://www.youtube.com/watch?v=ZzIcV9wDWu4>

For more information or TAGA/IBOA product demonstration, please contact:  [info@iboa.us](mailto:info@iboa.us)

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