# Mountain West Cybersecurity Consortium

## 2019 Spring Conference, Minutes

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April 27, 2019

**Chair:**       Rick White, Ph.D., UCCS Interim Director for Cybersecurity Programs, rwhite2@uccs.edu
**Vice-Chair:**  Jahangir Karimi, Ph.D., University of Colorado Denver, Jahangir.karimi@ucdenver.edu

**Appendices**:   Appendix A – Conference Agenda
                 Appendix B – Proposed Cybersecurity Problems

**Introduction:** The Mountain West Cybersecurity Consortium (MWCC) held its Spring Conference on April 25th and 26th at CU Denver South, 10035 S. Peoria St., Parker, CO, 80134. The event was sponsored by the University of Colorado, Colorado Springs, with funds received under Senate Bill 18-086.

**Program**: The 2019 Spring Conference was planned to further education by inviting faculty and students to submit presentation proposals and conduct a workshop to develop research partnerships addressing a proposed set of high-level cybersecurity problems. Time was also scheduled to place the MWCC on a more formal footing by establishing a charter and electing representatives. Until this time, the MWCC was the product of the University of Colorado Office of Government Relations. The conference itinerary was collectively developed and agreed with participating MWCC members through a series of monthly teleconferences leading up to the Spring Conference. CU Denver South was contracted to provide facilities and refreshments for the one-and-a-half-day conference scheduled for 25 & 26 April, 2019.

*Day 1 Presentations*. In response to a Call for Papers issued in January, the MWCC received three monographs. These were presented on the morning of the first day. Adam Duby, a Ph.D. candidate from UCCS presented a technical paper on new means for protecting against computer viruses by developing signatures based upon compiler meta-data. Abdullah Nuaim, a PhD. candidate from CU Denver presented a joint paper on a behavioral experiment designed to measure the effectiveness of narrative-based cybersecurity policies to reduce vulnerability to phishing attacks. Dr. Jeffrey London from Metropolitan State University in Denver presented a joint paper on an administrative initiative to assist Colorado universities and colleges with gaining accreditation as institutions for Cybersecurity Academic Excellence (CAE) and acquiring funding under the National Science Foundation Scholarships for Service (SFS) program.

*Day 1 Workshop*. The afternoon of the first day was devoted to a workshop for developing joint research partnerships among MWCC participants. Rick White facilitated the workshop by first presenting an overview on the state-of-the-practice for cybersecurity, specifically noting the shortfalls resulting in the current state-of-affairs. He then went on to propose ten high-level cybersecurity problems that might be candidates for funding under Small Business Innovation Research (SBIR) grants that the MWCC could tackle through joint research partnerships. The proposed list of problems is listed in Appendix B.

*Day 2 Business Meeting*. Day 2 of the conference was devoted to a business meeting establishing the future course of MWCC. The meeting began with election of a Chair and Vice-Chair to lead the MWCC over the next year. Rick White was elected MWCC Chair, and Dr. Jahangir Karimi from CU Denver was elected Vice-Chair. UCCS is prepared to sponsor MWCC with SB18-086 funding through the end of Fiscal Year 2021. The meeting then examined a preliminary set of by-laws to help guide the organization. A draft proposal will be put before MWCC members and voted at the next conference. The meeting next discussed events it could sponsor consistent with its vision and mission statements to support K-12 cybersecurity education. Participants generally agreed that there was opportunity to support Cyber Patriot programs in the Mountain West region by collectively seeking funding under the National Science Foundation GenCyber program. In this manner the MWCC could help schools develop mentors and sponsors to establish or build Cyber Patriot programs. The idea will be further developed and coordinated among MWCC members.

*Day 2 Conclusion*. The conference ended by sharing updates and interests among all represented schools. The conference was adjourned at noon.

**Discussion**:

*Attendance*. Twenty-three people representing ten institutions signed-up in advance to attend the conference. Only fourteen people attended Day 1, and nine people attended Day 2, though they still represented eight of the ten registered universities. Attendance was disappointingly low. Some said they didn't receive notification. This will have to be examined. As for the 40% who registered and didn't show, that might be fixed by assessing a nominal conference fee. Such a measure will have to be evaluated in consideration of the additional financial overhead it will incur.

*Presentations*. MWCC provided a forum for researchers to present and receive feedback on their programs. The topics were all relevant and pertinent to the MWCC vision and mission.

*Research*. Although collaborative research is explicitly part of the MWCC vision and mission, it is not a collective concern of the entire membership. Unlike four-year universities, two-year colleges in general don't have dedicated research programs. They are more directed towards workforce development than research and development. Consequently, college representatives, though engaged, may have felt the workshop to develop joint research partnerships was not within their specific interest.

*Organization*. For the first time, MWCC now has a set of elected officers. The conference set before them the task of establishing a charter and developing programs to assist K-12 cybersecurity education. Participants endorsed a program format based on two one-day conferences in the Spring and Fall. They also expressed their preference for conferences conducted in late-September, early-October, and late-February, early-March. Both the Chair and Vice-Chair will work to make this happen.

**Conclusion.** The MWCC Spring Conference didn't produce the research partnerships that were hoped. However, it did result in a more collaborative organization that seemed more interested in pursuing joint opportunities, if not in research, at least in K-12 cybersecurity education.

## Appendix A
## Conference Agenda

**CU Denver South, 10035 S. Peoria St., Parker, CO 80134**

**Mountain West Cybersecurity Consortium**
Spring Conference, 25 & 26 April, 2019

**Thursday, 25 Apr 19**
- 8:00 Reception/Breakfast
- 9:00 Welcome & Introductions
- 9:45 Presentation 1     Adam Duby, Software Diversification & Threat Intelligence
- 10:30 Presentation 2     Al Nuaim & Ramirez, CU Denver, Narrative Policy Framework
- 11:15 Presentation 3     London & Beaty, Metropolitan State University, Level Up Initiative
- 12:00 Lunch
- 13:00 Workshop
- 16:00 Social

**Friday, 26 Apr 19**
- 8:00 Reception/Breakfast
- 9:00 Review
- 9:30 MWCC Organization Meeting
- 12:00 Working Lunch
- 13:00 Conclusion

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**Appendix B**
Proposed Cybersecurity Problems

Mountain West
Cybersecurity Consortium (MWCC)

## 2019 Spring Conference

### Top-10 Cybersecurity Problems

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| 1. | Absolute Attribution | ENG | Absolutely identify cyber-attack sources. |
| 2. | User Breakpoint | SOC | Metric when users stop using Internet. |
| 3. | Absolute Authentication | ENG | Absolutely verify user identity. |
| 4. | Cyber Trust Model | THRY | Develop strong network trust model. |
| 5. | Automated IPS | ENG | Reliable, automated intrusion protection. |
| 6. | Alternative Architectures | ENG | Replace Von Neumann architecture. |
| 7. | Automated Defense-in-Depth | ENG | Automated threat warning & response. |
| 8. | Beyond Process Maturity | ENG | Improve upon current best-practices. |
| 9. | Artificial Common Sense | ENG | Impart judgement to avert catastrophe. |
| 10. | Internet Phase 5 | THRY | Design new, secure, & reliable Internet. |

Highlighted items are "cures", other problems treat "symptoms" of cybersecurity.

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