Note
The following report describes an earlier version of the Flying Carpet system, placed in the departure lounge where passengers took their places ***before*** having their boarding passes checked.
Nevertheless, it was a useful comparison with Simulat8's evaluation of the other boarding methods that Mythbusters tested.
Subsequent real-world trials produced even better results with the Flying Carpet placed ***beyond*** the checking station, smaller groups, and no color coding.

Simulating "The Flying Carpet"

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12 articles Following

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After simulating some of the common airline boarding schemes listed in our original article:

"Simulation Agrees... Back-to-Front Airline Boarding is the Slowest!" https://www.linkedin.com/pulse/article/20141015191743-34884345-simulation-agrees-back-to-front-airline-boarding-is-the-slowest?trk=prof-post

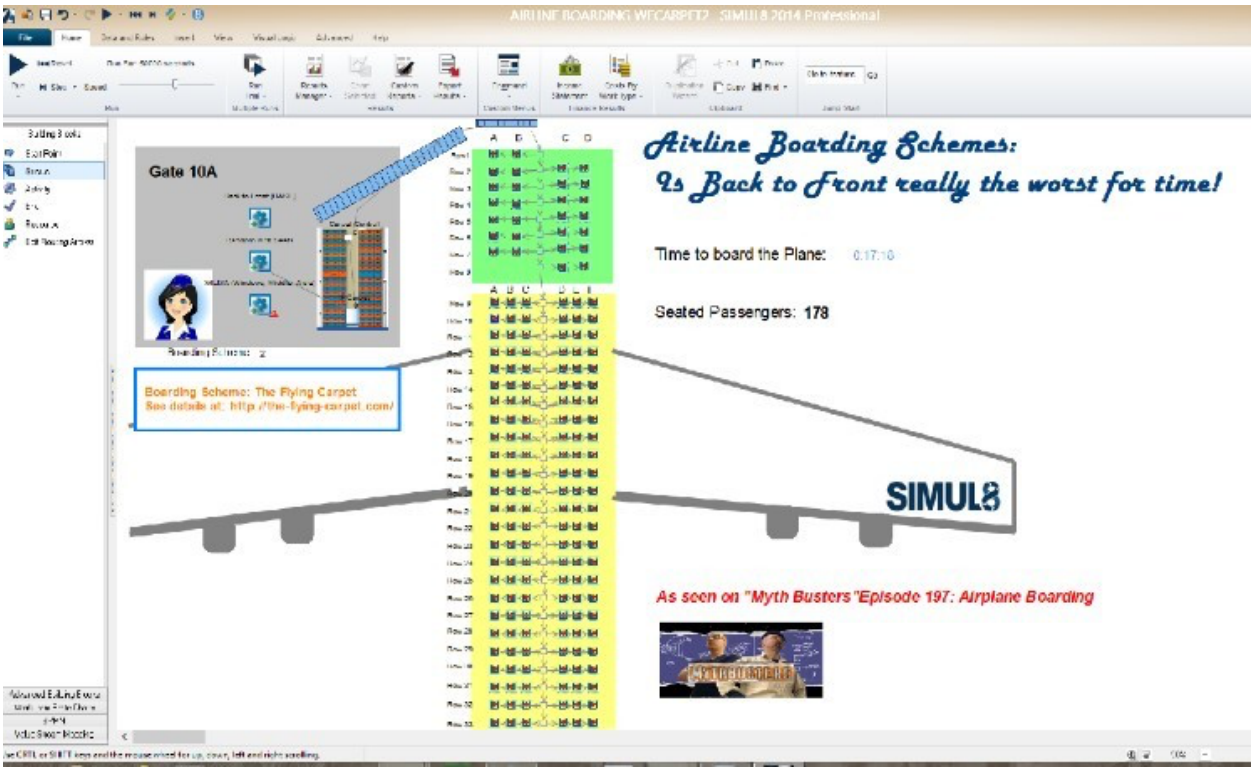
We at **SIMUL8** dug farther into investing some documented improved boarding schemes. One interesting boarding scheme that seems to address efficiency while maximizing customer satisfaction was **"The Flying Carpet"**. The Flying Carpet is literally a pre-boarding carpet, which allows passengers to align themselves according to a simple color coding seat chart imbedded within the carpet. The picture below is an example of a portion of the carpet which would be placed before the gate entrance. [1]

My understanding is that a passengers boarding pass is very similar to what you expect: including seat assignment; but it also includes a color code of (Orange or Blue), and no group number (exception First Class). The gate attendants determine the group sizes; usually 5-7 groups depending on size of plane. Passengers can join any group, as long as they are within their respective color group. The gate attendants call out specific colors to enter the carpet and rotate between orange & blue groups.

The carpet usually has ropes & poles surrounding it with an entrance and exit. Therefore, once a group is called, the gate attendant can close the entrance once a certain group-size has been formed. The layout assures that passengers will align themselves to their respective seat location allowing passengers to self-prioritize based on row number. The row prioritization coupled with a random entrance allows assures for minimizing aisle and seat congestion. Passengers will be more evenly spread across the plane allowing for increased elbow room as they enter their seat. Additional details, results, and a really nice animation can be found at: http://the-flying-carpet.com/

So… let's put it to our simulation test! We updated the model with a buffer to represent the carpet. This buffer can accommodate different size groups, and will always prioritize based on airline row number. We also added a color code to a passenger's ticket which aligns to "The Flying Carpet". Having the model updated we were ready to

board some simulated flights, and test this logical scheme. Sure enough... this was the most efficient scenario reducing boarding time by 33%. We were able to reduce the boarding time to just over 17 minutes, remember the traditional “Back-to-front” scheme came in at over 25 minutes.



This is a great scheme which captures the benefits of random behavior (creating the wide spread of passengers within the plane), and utilizes the minimum required logic to reduce aisle/seat congestion. Having a simple process will assure for increased customer satisfaction. More importantly, having boarded 178 passengers within 17 minutes will not only please the traveling population; but will aid in optimizing the busy skies of the globe! Hopefully, we will start to see more of these efficient solutions within our busy airports!

This article was written in sole interest of the benefits of using discrete event simulation.

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