



## Why do SMS messages arrive one at a time to student handsets? Good questions deserve detailed answers...

- 1) On a typical day, several teachers are logged in to their **M4E** accounts creating classes and test questions;
- 2) There are 10,000 plus student handsets in the organization;
- 3) Teachers are scheduling prep and review tests to be sent immediately, or at some future time;
- 4) The same student phone numbers can be in different classes managed by other teacher accounts;
- 5) Teachers expect answers to return within a specified time frame, accurately within their own accounts;
- 6) Participating networks experience no conflicts between all messages being routed for the round trip;



- 7) Much of this is occurring simultaneously. The same test events can be scheduled to send at multiple different times;
- 8) **M4E** servers manage waiting outbound question messages (and what test they are from) that may be in the holding queue from other **M4E** teacher accounts;
- 9) **M4E** scheduler manages immediate and future send times for all test events from multiple **M4E** accounts;
- 10) **M4E** servers detect when a student has responded to the current question message resident in their handset, and what test their response belongs to, and from which teacher account and scheduled date / time event;
- 11) **M4E** servers then transmit the next question message in the test series, once the previous response returns and is verified;
- 12) **M4E** server continues sending ongoing test events and their messages (tests and broadcasts).



The sum of all items can be confusing. Perhaps a pasta metaphor fits here. All **M4E** noodles look the same but can each represent items 1) through 12). A noodle can have multiple instances in this application. We track where each noodle begins and ends. They may perform common or separate tasks at any given time. In summary, **M4E** servers manage some challenging features. Well-designed, written and tested software makes this possible.

Thank you for reading **The Long Answer**