In recent years, new modalities of remittance transfer have been emerging thanks to the rapid advances in technology, especially in the developing world. Airtime top-up transfers are mobile credit transfers usually sent in small amounts to be used in the mobile phone of the recipient for communications and linked services. Airtime top-ups are highly popular among migrants for sending small amounts of money to their origin countries. This new form of remittances are understudied but provide a unique angle to understand the nature of financial remittances and their reactivity to critical events (e.g. natural crises, religious festivities) over time. In this study, we employ Bayesian structural time series analysis to dissect daily airtime mobile money transfer data across country-to-country corridors. Our objective is to ascertain the existence, magnitude, and duration of the impact of various critical events on these remittance corridors. By examining the days leading up to, during, and after the event’s influence, we aim to quantify its effect. Subsequently, we evaluate corridor characteristics, such as social connectivity, inter-country distance, and respective GDP per capita, to discern the attributes that render certain corridors more responsive to external events. This insight offers a nuanced understanding of remittance behaviors during emergencies or significant occasions.