UV burst are events seen in the (upper) solar atmosphere with a strong enhancement of the emission in the extreme UV for one to several minutes. These have been known under a range of names, e.g. explosive events, blinkers, or IRIS bombs, and are generally associated with reconnection. We conducted a set of numerical experiments guided by observations to better understand the nature and dynamics of these UV bursts. In the observation we found a small magnetic patch with a magnetic polarity opposite to the surrounding sunspot and pore. In our 2D reconnection experiment covering the atmosphere from the photosphere to the chromosphere we drove the system with a changing magnetic field at the bottom boundary resembling the observations. The resulting X-point above the small opposite polarity then stretches into a current sheet that gets unstable to plasmoids formation resulting in a bi-directional jet and plasmoids. With these models we can recover key observational features such as the strong intensity increase and the substructure of the light curve in time with short bursts. More importantly, these models that include the stratification of plasma from the photosphere to the corona give a natural explanation why the UV burst seem to be restricted in a temperature range around a few 0.1 MK. If the reconnection happens to deep in the atmosphere, the energy from the footpoint driving is not sufficient to get a significant thermal response of the chromosphere, and if the reconnection point would be too high, there is no sort-term storage of magnetic energy that could lead to the burst. With our numerical experiments we can provide a comprehensive understanding of UV bursts, and we can show a path how to unify these with other events such as Ellerman bombs.