Let $\mathfrak{g}$ be a finite-dimensional Lie superalgebra over an algebraically closed field $k$ of characteristic $p \geq 3$. Using the cohomology ring of $\mathfrak{g}$, one can define for each $\mathfrak{g}$-supermodule $M$ a corresponding geometric invariant $X_\mathfrak{g}(M)$, called the (cohomological) support variety of $M$. In this talk I will discuss recent work with Jonathan Kujawa in which we explicitly describe $X_\mathfrak{g}(M)$, in terms of local representation-theoretic data, as a subset of $X_\mathfrak{g} = \{x \in \mathfrak{g}_1 : [x, x] = 0\}$, the odd nullcone of $\mathfrak{g}$. A key tool in our approach is the Clifford filtration on $\mathfrak{g}$, which allows us to compare $X_\mathfrak{g}(M)$ to the known support variety of a certain related unipotent finite supergroup scheme. As an application of our results, I’ll discuss a positive characteristic analogue of a theorem of Bøgvad, and some open questions concerning the representation-theoretic meaning of the condition $X_\mathfrak{g}(M) = \{0\}$. (Received July 08, 2019)